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THE AFFECTIVE SYMPTOMATOLOGY OF DISSEMINATED SCLEROSIS.

A STUDY OF 100 CASES.

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Disseminated sclerosis is a common nervous disease, in England at least, and its study has formed the subject of numerous volumes, monographs, articles and communications which have dealt with its many aspects, etiological, symptomatological, and pathological, yet we have for long been of the opinion that one of its sides, and that not the least important and significant, has not hitherto received that attention which it assuredly merits. Some reference to the psychical, emotional or affective symptoms of the disease is doubtless a textbook commonplace, and various communications in an enormous literature have been devoted to individual symptoms of the mental series; it is not a little surprising, however, in view of the relative prominence of emotional abnormality in the affection, that this has never been submitted to adequate analysis. In scanning the literature we have often been disappointed with the way in which so significant a group of symptoms has been treated, one of the obvious reasons for which is, that the disease comes almost entirely under the purview of the neurologist, who may not develop the interest or possess the knowledge for such an investigation. Only by collaboration on the part of the neurologist and the psychiatrist, as we believe, can this aspect of the subject be dealt with in a satisfactory manner.

In his clinic at the National Hospital, Queen Square, one of us has devoted much attention to pathological laughing and crying[1] as a symptom of various neurological conditions of the organic category, and, in particular, to the abnormal emotionality that is characteristic of disseminated sclerosis. He

was desirous of prosecuting the subject further with the aid of a psychiatrist, and the present paper is the outcome of an eighteen months' collaboration of this kind which circumstances rendered possible.

For the purposes of this study we have taken one hundred consecutive cases of the disease, male and female, just as they have been met with in the ordinary course. There has been neither selection nor discarding. While the majority have been those of patients in the clinic, we owe the opportunity of examining others to the kindness of colleagues on the staff of the Hospital, and one or two more to other friends. Each has been submitted to a complete neurological and psychiatric examination, according to a scheme the details of which are given in a succeeding section.

INTRODUCTION.

At the outset it is desirable to specify with some particularity the subject-matter with which we are concerned. The 'mental symptomatology' of the disease is capable of the widest interpretation; it may be, and frequently has been, subdivided into intellectual and emotional disorders, while on occasion severer conditions, of the nature of one or other of the psychoses, have been observed. The fact remains, that patients suffering from disseminated sclerosis enter asylums very rarely indeed, and that exceptional cases of this kind are insignificant in comparison with those exhibiting, as we shall be able to show, emotional changes which are practically constant. Instead of searching for unusual mental types, we have scrutinised 100 average cases, inclusive of all the best-known clinical varieties, and have investigated both the intellectual and the affective sides of the patients' mentality. Among these 100 cases we have found one or two with exceptional mental symptoms—as will be set forth in due course—but our deductions have been drawn from analysis of ordinary and not extra-ordinary instances of the affection.

The conclusions to which our study has led us are set out at the close of the article; we may say here, by way of anticipation, that we have found that some change in emotional reaction is practically universal, that it occurs with greater frequency than any other symptom whatever, and that it sometimes precedes any of the other manifestations of the disease. Contrasting with this is the relative rarity of an intellectual deficit, except in advancing cases, and then only in a few. We have also paid minute attention to the 'bodily feeling' of disseminated patients, and ascertained significant data the import of which will be duly examined. From consideration of the facts of observation in this series of cases we shall proceed to outline certain hypotheses as to the etiological nature of the disease and its mode of invasion of the nervous system. Further, we shall indicate how the study of the 'mental' symptoms of disseminated sclerosis can throw light on some questions of cerebral physiology.

LITERATURE.

In view of what has already been remarked, any complete survey of the records of cases with mental symptoms is fortunately unnecessary. Every one admits their occurrence, but not even in the elaborate monographs of Müller[2] and others have we been able to find a satisfactory account of what we are convinced is the actual position in this respect. We append, however, a succinct resumé of some of the numerous previous communications in which our subject is alluded to.

Seiffer[3] says the current opinion is, that mental disorders are only slight, being usually described as consisting in an enfeeblement of the intellect and a more or less marked euphoria. He subjected ten consecutive cases to a systematic examination, and in nine he found defective memory, defective association of ideas, and a certain slowness in thinking; he also noted euphoria and labile moods.

Raecke[4] examined 37 patients, noting marked mental enfeeblement in 13 and other mental disorders in nine. Only in 15 cases was no mental defect observed, and in these the disease was not far advanced. Among the symptoms are specified depressive and maniacal disorders, silly cheerfulness, great irritability, confusion, hallucinations, and delusions.

Reiff[5] has studied 66 cases from the mental standpoint; in 30, mental symptoms of a definite character were remarked, consisting of dementia (simple or euphoric), and affective disorder (pathologically altered moods, euphoria, depression, apathy, excitability, facile change of mood).

Berger's[6] statistics are based on the investigation of 206 cases; in only 23 did he find "psychical alterations" in the course of the disease—a percentage of 10.6. This author separates "mental" alterations from those of an affective character, e.g., involuntary laughing and crying, though the two are combined in the above quoted figures.

The most recent statistics are those of Wolfgang Böhmig,[7] whose tables are based on the examination of 318 cases. Though giving some nine types of initial symptom, none of a mental or affective class is specified by him; he quotes "mental disturbances" as a group of symptoms noted when the definite diagnosis is made, and these he found in only 14, a percentage of 4.7!

Surprising as the last-cited figures are, they are not unique. Writing on the frequency of various symptoms in disseminated sclerosis before the development of the so-called cardinal signs of tremor, nystagmus and scanning articulation, Ashley Mackintosh[8] does not even mention any mental symptom, emotional or intellectual, as occurring in his 110 cases.

By way of contrast, we will content outselves with a reference to one or two textbook statements. Jelliffe and White[9] enumerate as mental symptoms "mild intellectual reduction in the form of a dementia, hallucinatory states with mild confusion, passing ideas of reference and of persecution, difficulty in thinking, spasmodic intermittent alternations in the capacity for attention and concentration, lapses of memory," and add that while they are "for the

most part " absent, they are " more frequent than is usually taught." Distinguished from these are involuntary laughing and crying, which are " very often " found, forced laughing being the more frequent. Neither is usually or of necessity accompanied by the corresponding emotional state, nor does it betoken necessarily any intellectual deficit.

In Oppenheim's [10] experience " the intelligence is often diminished " ; the symptom of uncontrollable laughter, " erroneously brought into relation with the decline of mental power," " frequently " appears even in the early stages ; " the patient has to laugh against his will, although his mood is not gay."

At the discussion on disseminated sclerosis conducted by the Association for Research in Nervous and Mental Diseases,[11] Sanger Brown (secundus) and Davis expressed the opinion that, " counting the euphoria, probably in 90 per cent. of cases there are mental alterations which warrant the meaning commonly granted to the term ' mental symptoms.' " " Many patients " with the disease have a slight elevation of mood which may be termed euphoria. Notwithstanding the organic and progressive nature of the affection, marked mental deterioration is rare. In many cases of long standing changes of this character are " very slight." Of 6,700 insane patients in the Manhattan State Hospital (1921), there were only three cases of disseminated sclerosis.

The striking disparities between the figures and statements which we have chosen to quote can be accounted for mainly in two ways ; there is no consensus of opinion as to what constitutes a ' mental symptom,' and cases have not always, or often, been subjected by the neurologist to an analysis that would satisfy the psychiatrist. Speaking generally, the views and statistics of Sanger Brown and Davis approach more closely to those we shall furnish than do any of the others. These authors, however, offer no explanation of the euphoria and other symptoms of the mental series, nor have they been able to differentiate the actual symptoms as we think requires to be done.

METHOD OF EXAMINATION.

Each case has been submitted to investigation on the lines of the following scheme, which has been drawn up with care and the nature of which has been explained to the patient. Without exception we have had willing co-operation on the patient's part, and in numerous instances, once its tenor has been grasped, he or she has volunteered useful, indeed valuable, information not previously given to anyone, showing how clearly awareness of emotional or other mental change has been present in the mind.

Scheme used in certain Organic Diseases of the Central Nervous System to determine possible Discrepancies in the Emotional Field due to faulty Perception, Association or Expression.

I. EMOTIONAL CONTENT.

Describe in a few words your general or usual mood :-

Do you feel consistently cheerful or happy ?

Do you feel consistently sad or unhappy ?
Are you naturally optimistic ?
Are you naturally pessimistic ?
Are you aware of any alteration in either respect since the onset of the illness ?
Are you optimistic or pessimistic in reference to your disease ?
Do you change readily from a feeling of cheerfulness to one of sadness, and vice versa ?
Are you easily amused—
By what you see ?
By what you hear ?
By what you read ?
Are you easily depressed—
By what you see ?
By what you hear ?
By what you read ?
Are your moods fleeting or apt to last for some time ?
Any change in this respect from formerly ?
Are you naturally phlegmatic or indifferent ?
Are you anxious or worried ?
Are you irritable ?
Do you easily lose your temper ?
Are you different in mood in any of these respects from what you were one, two, five, ten, twenty years ago, or before the commencement of the illness ?

P.II SYCHICAL DETERMINANTS.

Are your thoughts consistently pleasant ?
Are your thoughts amusing ?
Are you inclined to daydream, to live in the future, to live in an ideal world, or to live in the past ?
Are your thoughts consistently unpleasant, serious, sombre ?
Are you inclined to ruminate on unpleasant subjects ?
Are your thoughts depressing ?
Are you inclined to worry about yourself ?
Do you dream ?
Are the dreams pleasant or unpleasant ?

III. PHYSICAL DETERMINANTS.

Describe your bodily feeling as a whole—
Are you conscious of any pleasant or unpleasant sensation in your body as a whole or a part ?
Do you feel tired or fatigued ?
Do you feel relaxed ?
Do you feel sleepy ?

Is the feeling one of bodily ease ? Is the feeling one of contentment ?
Is the feeling one of pleasure ?
Is your general feeling one of malaise ?
Do you feel tense ?
Do you feel nervous or jumpy ?
Have you any feeling of pain, aching, soreness ?
Are you restless ?
Does the performance of normal bodily functions produce pleasant or unpleasant sensations ?

IV. Affective Conduct.

Do you laugh easily ?
Do you laugh without adequate cause ?
Do you cry easily ?
Do you cry without adequate cause ?
Is your outward expression a reliable gauge of your inward feeling ?
Can you control the expression of your feeling ?
Are you different in any of these respects from what you were one, two, five, ten, twenty years ago, or before the commencement of the illness ?

CLINICAL MATERIAL.

1. *Sex.*—The hundred consecutive cases are made up as follows: male, 44; female, 56.

2. *Age at onset.*—In Table I are given in decennial periods the ages of the patients at the time when symptoms first made their appearance.

Table I. Age at Onset of Symptoms.

Age Period.	*Number of Cases.*
10–19 years	14
20–29 ,, ...	38
30–39 ,, ...	31
40–49 ,, ...	16
50–59 ,, ...	1
	100

It is worth mentioning incidentally that in the series the earliest age at which primary symptoms developed was 13 years, and the latest, 55.

3. *Duration of Symptoms at Time of Examination.*—In view of frequent statements to the effect that mental symptoms, using the term in its widest sense, are more likely to be met with in later stages of the disease, we give in

Table II a list of cases enumerating the varying lengths of time the illness had been in evidence when the patients came under observation.

TABLE II. DURATION AT TIME OF EXAMINATION.

Number of Years.	*Number of Cases.*
1 year or less	15
2 years	9
3 „	12
4 „	9
5 „	6
6–9 years	29
10–19 „	16
20 years or more	4
	100

The extreme limits in regard to duration of symptoms in our series are six weeks, and thirty-seven years, respectively.

From this Table, and from the information just supplied as regards shortest and longest cases, it is at once evident that we have been dealing with instances of the affection of the most varied character, acute, subacute, and completely chronic; if, then, we can show that emotional or affective alteration occurs with constancy irrespective both of the age of the patient and the duration of his symptoms, we shall be justified in our contention that this is a basal symptom, the significance of which cannot be overrated.

4. *Neurological Types.*—Discrimination between differing clinical varieties of disseminated sclerosis is for the purposes of this communication desirable, since the question will arise whether the occurrence of affective disorders is more characteristic of one clinical type than another, or is to be correlated with some particular anatomo-physiological localisation of the morbid process.

A sharp division into distinct clinical types is less difficult in regard to early stages or first symptoms than when there has been some progression of the malady; it is natural for varieties to run into each other, so that the data collected in Table III are to be interpreted in an approximate rather than absolute fashion.

TABLE III. NEUROLOGICAL TYPES.

Clinical Variety.	*Number of Cases.*
1. Spinal	38
2. Cauda equina and sacral	1
3. Pontobulbar	5
4. Cerebellar	5
5. Ocular	7
6. Cortical	3
7. Mixed or generalised types ..	41
	100

Neurologically viewed, the cases of the series have included all ordinary varieties and several also that are somewhat exceptional (sacral and cortical classes).

AFFECTIVE SYMPTOMATOLOGY.

As a brief preliminary to our clinical study we consider it necessary to specify some terminological distinctions. It is desirable, for example, to differentiate between physical and mental wellbeing. For the latter we shall use the familiar term ' euphoria,' restricting its meaning to signify the mental state of cheerfulness, happiness, ease—expressed negatively by the absence of mental uneasiness, anxiety, tension, or dispeace. We suggest the phrase ' euphoria sclerotica ' to indicate that very common affective state of disseminated patients, in which the prevailing mood is one of serenity and cheerfulness. The word ' euthymia ' might also serve in this respect. The converse feeling of mental unrest, disquiet, uneasiness, unhappiness, is expressed by the term ' dysphoria.'

In regard to physical or somatic wellbeing we do not consider ' euphoria ' appropriate, or, rather, we seek a separate term. As we shall see, a very large number of patients are conscious of a feeling of bodily health, quite different from that of mental wellbeing ; in the American phrase, they ' feel good,' an expression meaning rather more than the English ' feeling fit.' They feel physically well tuned up, they ' could do anything,' they are not conscious of physical disability. For this somatic wellbeing we suggest the term ' eutonia sclerotica,' and we shall use ' eutonia ' in this sense. Its opposite, ' dystonia,' is commonly employed in respect solely of states of the skeletal musculature (e.g., ' dystonia lenticularis '), but this need occasion no confusion ; we shall not be dealing with a ' dystonia muscularis,' but a ' dystonia somatica,' a sense of physical illbeing.

Finally, in this preliminary connexion, we have not infrequently noted an optimism as to the future and the prospects of ultimate recovery which is out of place and incongruous ; by analogy with what sometimes similarly obtains in cases of phthisis, we may speak of a ' spes sclerotica.'

I. EMOTIONAL CONTENT (PREVAILING MOOD).

Table IV embodies the results obtained by the examination of our 100 cases of disseminated sclerosis (of both sexes, of wide differences in regard to age, duration and severity of symptoms, and neurological type) as far as section 1 of the questionnaire is concerned, viz., the general, usual, or prevailing mood of the patient.

In amplification of Table IV we ask the reader's attention to Tables V and VI, the source of both of which is the information derived from the same section 1 of the questionnaire. Table V is intended to show what changes, if any, have taken place in the usual mood of the patient since the onset of the illness or during its course, while Table VI represents in statistical form the attitude of the patient towards his disease, that is to say, whether he is cheerful

or the reverse as regards the outlook and whether he has altered in either respect as the disease has progressed.

TABLE IV. PREVAILING MOOD.

Clinical Types.	*Number of Cases.*
1. Cheerful merry, gay type (Euphoria sclerotica)	63
2. Depressed type (Dysphoria)	10
3. Variable type	12
a. Rapid change of mood type	13
4. Indifferent, stolid type	2
	100

TABLE V. CHANGE IN EMOTIONAL CONTENT (PREVAILING MOOD) FROM ONSET OF ILLNESS, OR SINCE.

Type of Change.	*Number of Cases.*
1. Change to, or increase of, cheerfulness	63
2. Change to, or increase of, depression	10
3. Increased variability	25
4. Stolidity	2
5. No change	—
	100

TABLE VI. CHANGE IN OUTLOOK, FROM ONSET OF ILLNESS, OR SINCE.

Type of Change.	*Number of Cases.*
1. Change to, or increase in, optimism (spes sclerotica)	84
2. Change to, or increase in, pessimism	15
3. No change	1
	100

From the data furnished in these three Tables we find that 63 per cent. of disseminated patients exhibit a frank emotional euphoria and only 10 per cent. of them are depressed or dysphoric. Amongst the whole hundred we have found only two who are emotionally indifferent or stolid. By comparison of Tables IV and V (which are statistically identical) we demonstrate that *in every single instance of the affection that has come under our observation in the course of eighteen months a change in mood has been a symptom.* Thus patients formerly cheerful have become more so; a number previously apt to be despondent on occasion, or 'moody,' have become consistently light-hearted and gay; others of variable mood now find this variability intensified and accentu-

ated ; still others (a small minority) have noticed that former mental wellbeing has altered to illbeing, or that so far from cheerfulness and serenity having developed with the disease their previous tendency to depression is increased. Even in respect of the two cases of affective stolidity, we specially note that this emotional indifference is itself a change from their former emotional 'habit.'

CLINICAL ILLUSTRATIONS.

A few clinical examples may now be selected by way of illustration of these changes in the affective field.

CASE 1. W. P., male, age 51 ; duration of symptoms, seven years ; type, spastic.

His spirits are better than ever before ; he feels consistently bright, cheerful, and happy ; he is never sad or depressed, though formerly he became depressed very readily. He is never irritable and does not lose his temper, as he used easily to do. In all these respects the last five years have seen a marked change.

He had been a mate on a sailing vessel and was noted for his callous brutality. When his illness began he observed a direct and definite change, and at the present time his entire range of feeling has so altered that " he cannot now think of cruelty to either man or beast."

CASE 12. A. B., male, age 33 ; duration of symptoms, three years ; type, oculo-spastic.

He is constantly cheerful and " bubbling over with excitement " ; he " turns all his sadness to joy " ; he never worries, is easily amused ; " the least little thing tickles him " ; his cheerful mood is continuous ; " if someone told me that my best friend had committed suicide I should laugh over it as if it were a good joke."

This state is an exaggeration of his previous affective 'habit.'

CASE 24. M. D., female, age 38 ; duration of symptoms, six years ; type, oculo-spastic.

She has moods of " brightness " when she gets excited and laughs immediately ; though inclined to be pessimistic this does not apparently tinge her mood with sadness or interfere with her laughter. These spells of elation are followed very rapidly by moods of depression in which she weeps copiously. Sometimes she is " set to laughter and at other times to tears " ; these " come and go like April showers," and are very fleeting. In all these respects she has changed decidedly since her illness commenced.

CASE 38. R. L., male, age 31 ; duration of symptoms, three and a half years ; type, ocular.

He always feels depressed and melancholic except for a brief period each day, when he becomes unnecessarily cheerful and bright ; this is described as a fleeting period of cheerful excitement coming on usually in the evening, before dinner. He then feels he has no control over himself and sings and laughs without any justifiable reason. After a few minutes he sinks into a deep depression. During the day, apart from the above, he feels gloomy and despondent, worrying over everything and nothing, becoming irritable and impatient.

He states emphatically that this condition of affairs has come on since his illness ; formerly he was very cheerful and optimistic ; whereas ever since his general outlook has ideveloped nto one of " gloom and hopelessness."

CASE 35, E. P., female, age 35 ; duration of symptoms, two years ; type, cortical.

Usually " full of life," since her illness she has gone off to the other extreme. She now feels, in her own words, " down and out and far from home." Breaking into laughter, she said, " Excuse me, sir, but I must make a joke of it or I won't be able to get along."

There are brief periods of extreme cheerfulness in which she feels " full of fun and up to any devilment," which come on in the afternoons, last for an hour or two, and disappear with suddenness. Otherwise, she is anxious, worried, uneasy, irritable and depressed.

She has thought a great deal of suicide, but "the whole thing seemed so silly" that she gave it up.

In the above-mentioned ways her emotional condition has altered entirely since the onset of the disease.

CASE 74. B. U., female, age 39; duration of symptoms, 19 years; type, advanced generalised.

The patient feels very cheerful and happy at all times. As a girl she was just the opposite, worrying over things and often depressed. "With my first symptoms I noticed, and others noticed, a gradual oncoming cheerfulness which we all thought very strange, for I had been anything but happy as a girl. I cannot explain reasons for my cheerfulness and happiness. Now I am optimistic but before my illness I was just the opposite."

The other patients in the ward "call me 'Sunshine,' because I am always smiling and laughing."

CASE 77. L. B., male, age 18; duration of symptoms, six months; type, spastic amaurotic.

Always of a cheerful type, he has noticed a marked increase in this since the onset of his illness; anything amuses, nothing depresses him. "I am never, never sad." Optimistic and even-tempered, he says "he is the friend of everyone." When asked the question, "How are your spirits?" the reply came instanter: "Doctor, my father can't afford spirits so I keep mine up and make them for him."

Though the symptoms have been in evidence for only six months, this case represents an extreme type of elevation of mood, and will be referred to again in another connection.

We need add nothing to these brief clinical records, chosen almost at random; they exemplify clearly the varieties of affective change to which prominence has already been given and prove unmistakably and beyond cavil that emotional abnormality is a cardinal symptom of disseminated sclerosis whatever the duration, degree, or neurological type of the disease.

II. PSYCHICAL DETERMINANTS.

Section II of our questionnaire was so cast as to include queries which we thought might help in determining possible causes for the euphoria sclerotica characterising, as we have found, 63 per cent. of all cases, for the low-spiritedness exhibited by 10 per cent., and, generally, for the change in emotional content exhibited by all.

Our conclusion is, that under this heading little information of value can be expected, for we have found that in the great majority of cases the answers to the questions were obviously coloured by the prevailing emotional content. In not a few instances the patient was clearly rationalising in respect of his interpretations of his affective symptoms. As might have been surmised, patients of the euphoric group declare almost invariably that their thoughts are pleasant, while the dysphoric group indulge in gloomy thoughts.

For instance, patients of the former class express themselves as follows:

"I lie and think agreeably of my past, which forms a pleasant book from which to read."

"My thoughts are always bright and amusing; I have nothing to think about that is sad."

"I can't think of bad or unpleasant things—it's a waste of time; I look pleasantly forward to the future."

"I never think of anything depressing; I more or less live in the future, when I shall be well again."

"I am always in a good humour and have no reason to think of sad or unpleasant subjects. Why should I? I am doing very nicely."

"There is nothing sad and depressing for me to think of, so why should I hunt for such things? There are happy days to come."

As examples of the ideation of patients belonging to the depressed or dysphoric category the following selections may be cited:

"My thoughts are always sombre and depressing and I do not know what it is to think of anything pleasant."

"I never have bright or amusing thoughts, and am inclined to ponder constantly over depressing things."

"My thoughts are always gloomy and it takes a great deal to raise them; I am worrying about myself all the time."

"I worry about everything; my thoughts go in a circle and are usually unpleasant. There has been a big change in this way since my illness began." (This patient is a hunchback, and emaciated).

"My mind dwells on unpleasant things; the pleasant thoughts go so quickly."

It is interesting to note that in only four cases (four per cent.) was there any tendency to daydream, to live in the future or in an ideal or unreal world. In view of the clinical fact that tendencies of this kind are not uncommon as early, positive symptoms of intellectual deterioration, their relative absence in our group of cases, as well as the lack of evidence of true dementia, indicates the rarity of these states in the disease.

III. PHYSICAL DETERMINANTS.

Valuable data have been obtained in answer to the queries specified in the third section of the questionnaire. Having little or no previous information on the matter of the bodily feeling of disseminated patients to aid us, we have been correspondingly impressed with the remarkable frequency with which our patients have admitted the existence of a feeling of physical wellbeing, even, as we shall show immediately, in cases in which the actual neurological condition was advanced and severe. The accompanying Tables give the reader the figures.

TABLE VII. CLASSIFICATION FROM STANDPOINT OF BODILY FEELING.

Condition.	*Number of Cases.*
1. Sense of physical well-being (Eutonia sclerotica)	84
2. Sense of physical ill-being	6
3. Mixed or combined	9
4. Indifferent	1
	100

TABLE VIII. CHANGES IN BODILY FEELING FROM ONSET OF ILLNESS, OR SINCE.

Type of Change.	*Number of Cases.*
1. Change to physical well-being ..	11
2. Increase of physical well-being ..	77
3. Change to physical ill-being ..	4
4. Increase of physical ill-being ..	2
5. Change to indifference	1
6. No change	5
	100

As was emphasised in a previous paragraph, a clear distinction is to be drawn between euphoria, a sense of mental wellbeing, and eutonia, a sense of physical wellbeing. So far as is known to us, no analysis of the latter has hitherto been conducted in respect of sufferers from disseminated sclerosis; and as our investigation has proceeded we have been more and more impressed by the accumulating clinical data. In numerous instances, further, the patients themselves have, previously and independently, been more than a little amazed at the apparent incongruity between their sense of bodily ease and health and their actual crippled state. Of this examples are given below. We know of no other organic nervous disease, progressively paralysing in character, of which the same can be said, and we consider *we are fully justified, therefore, in attaching fundamental significance to eutonia sclerotica*—a symptom as basal as is euphoria sclerotica. According to our statistics, 84 per cent. of disseminated cases, of all sorts, duration and degree, are characterised by a feeling of bodily ease, comfort and health on the part of the patient. In only six per cent. has a sense of physical or somatic illness been present—a percentage that accentuates the predominance of the other by its very lowness. Finally, no less than 95 per cent. of our patients have exhibited a change in bodily feeling since the illness has started.

It will be our object at a later stage to analyse this peculiar and unexpected symptom from other viewpoints; at present some descriptive illustrations of the varieties may be supplied.

CLINICAL ILLUSTRATIONS.

As before, instances may be taken almost at random; we select those in which the symptom has been personally observed by the patient, or which exhibit striking contrasts between it and the neurological stage of the disease, or which, for other reasons, are worth citation.

CASE 37. G. B., female, age 26; duration of symptoms, four years; type, oculo-cerebellar. She is so conscious of physical well-being that she "feels she could get up and dance about." She has much more pleasant physical feelings than she had before her illness. She used sometimes to feel as if "she were carrying a ton weight"; now she feels fit to do anything. She feels sure she enjoys everything much more than she did before her illness began. Her somatic state is one of extreme ease and pleasure.

CASE 40. J. W., female, age 49; duration of symptoms 12½ years; type, spastic.

As she lies in bed she feels she has the ability to do anything; she "could jump out of bed and run about like a child." The feeling is one of complete contentment, ease and pleasure, which has become more pronounced since her illness. It is interrupted from time to time by her "jerking spasms," which are painful; when these cease her physical feeling is "perfect."

CASE 43. A. R., male, age 22; duration of symptoms six months; type, oculo-spino-cerebellar.

The patient says "he never felt better physically"; he has felt much better since the commencement of his illness; in bed he feels pleasantly relaxed and perfectly at ease. He says definitely that his feeling is one of "bodily pleasure" and that "he has not a complaint in the world when lying in bed." He has observed a marked change in this respect from the outset.

CASE 56. W. F., age 40; duration of symptoms, 12 years; type, oculo-spastic.

Although this patient is now practically unable to stand or walk he declares he feels perfectly fit and when sitting or lying down is conscious of a soothing feeling "as if he had been drugged." This has been noticed since the beginning of the illness. When trying to move about he is conscious of numbness and pain in his limbs, but when at rest he feels "he is capable of performing the most arduous task." This "feeling of extreme bodily pleasure is almost unexplainable."

CASE 78. M. R., female, age 49; duration of symptoms, 3½ years; type, generalised (advancing).

Physically, she feels perfectly fit. She says, "You will not believe me, sir, when I say that I feel thundering well." Though bedridden and unable to stand, she feels much better than ever before, enjoying her food, sleep, and everything more since her illness than previously. Her somatic feeling is one of ease and pleasantness at all times.

CASE 83. J. S., male, age 46; duration of symptoms, four years; type, ponto-cerebello-spinal.

"In myself I feel better than ever before in my life," except for the weakness of the legs. "In fact, I feel so well that I fool myself; I think I can do anything, but when I start my legs begin trembling and I am done." He is never conscious of any physical feeling of unpleasantness or uneasiness.

CASE 90. A. R., female, age 16; duration of symptoms, two months; type, cerebellar.

The patient feels extremely fit in every way. "I feel so happy that I could sing and so well that I could dance all day long." She is never aware of the slightest feeling of physical discomfort. She is always pleasantly at ease, and feels better now that she did before she was ill.

CASE 21. H. S., female, age 47; duration of symptoms, 23 years; type, spastic.

Her bodily feeling is unpleasant. She feels "helpless," as if she cannot move; it is a sort of "aching soreness." She feels jumpy and restless.

CASE 24. M. D., female, age 38; duration of symptoms, six years; type, oculo-spastic.

The patient complains of pains in the arms and head, and of feeling tired and fatigued. She does not sleep well and is conscious of a general feeling of physical malaise. She is restless and feels "strung up."

The last two of this selection belong to the dystonia group, while the others exemplify clearly the astonishing eutonia sclerotica of which we have spoken. In a number of instances we have noted that the latter feeling is apt to disappear whenever the patient moves or attempts to move, a point to which we shall return in our discussion of individual symptoms on a subsequent page.

IV. AFFECTIVE EXPRESSION AND BEHAVIOUR.

The fourth section of the questionnaire deals with the common and well-recognised emotional instability of disseminated patients, in respect, that is,

of outward behaviour and expression. Everyone knows the laughing and smiling type of patient, where the symptoms are so characteristic as to be of pathognomonic value; less common but equally distinctive is the type particularised by alternation of smiles and tears. So prominent in the clinical picture of the average case is this emotional 'facility' and exaggeration that we have come to regard it as constituting a symptom more fundamental than any specified by Charcot years ago in his famous symptomatological triad. To this point also we shall return at a later stage.

Table IX classifies our cases from the standpoint of emotional affect or expression.

TABLE IX. EMOTIONAL AFFECT (OUTWARD EXPRESSION).

Varieties.	*Number of Cases.*
1. Smiling and laughing type (constant)	71
2. Smiling and laughing plus crying ..	19
3. Rapid change type	2
4. Crying type (constant)	3
5. Stolid type (outward expression) ..	4
6. Exceptional types	1
	100

If we take varieties 1 and 2 together, we find that in no less than 90 per cent. of all disseminated cases smiling and laughing are obvious features, the more noticeable because they occur in season and out of season, so to say; under slight provocation, at the bidding of minimal stimuli, they make their appearance when there is certainly no obvious warrant for them. If we include varieties 3 and 4 also, then the percentage rises to 95, hence only one conclusion is possible—that *emotional facility and overaction form one of the cardinal symptoms of the disease.*

It is of interest to analyse the series in regard to any changes in this respect which have been remarked by the patients themselves, or have become plain to others, since the beginning of their illness, and this is done in Table X.

TABLE X. CHANGES IN EMOTIONAL EXPRESSION FROM THE ONSET OF ILLNESS, OR SINCE.

Type of Change.	*Number of Cases.*
1. Increased smiling and laughing ..	76
2. Increased crying	4
3. Increased smiling, laughing and crying	16
4. Decrease in smiling and laughing, no tears	1
5. No change	3
	100

From this Table the reader will learn that 96 per cent. of cases of disseminated sclerosis exhibit increase of emotional overaction, whatever the degree or duration of the illness and whatever the grouping of its neurological symptom-complexes. In one case only was emotional expression diminished in its manifestations (one per cent.). Combining the statistical information of Tables IX and X, we see that 95 out of 100 cases of the disease are distinguished by facility and amplification of emotional expression (affect), and that in 96 out of 100 there has been a change in this respect since the illness began. The stolid and 'no change' cases form the trifling minorities of four and three per cent. respectively.

Lest it should be thought, on the other hand, that this striking symptom is always as obvious to the patient as it is to the examiner, we provide figures in Table XI from which it will be seen that not all patients are aware that their emotional behaviour is scarcely normal.

TABLE XI. INSIGHT INTO EMOTIONAL CONDITION.

Clinical Type.	*Number of Cases.*
1. Awareness of emotional change; conservation of intellectuality ..	87
2. Ignorance of obvious emotional change	11
3. General intellectual deterioration ..	2
	100

Excluding the two cases in which general mental disintegration has been taking place, we note that 11 per cent. of our patients have failed to observe their altered emotional affect, while no less than 87 per cent. have remarked it and in many instances been impressed by it.

The next matter connected with this same question bears on the presence or absence of control over emotional manifestations.

TABLE XII. CONTROL OVER EMOTIONAL AFFECT (EXPRESSION) SINCE ONSET OF ILLNESS.

Type.	*Number of Cases.*
1. No change in emotional control ..	3
2. Loss of, or imperfect, control ..	97
	100

No descriptions, however elaborate, are needed to intensify the impression left on the mind by these bare percentages (Tables IX, X, XI and XII). The conclusion is, that *no single symptom of the neurological series (nystagmus, tremor, scanning speech, paraesthesiae, spasticity, amaurosis, etc.), occurs with anything like the same frequency in an unselected century of cases of the disease,*

and that the cardinal symptoms are not neurological, in its limited sense, but belong to the emotional, affective, and visceral spheres, and are constituted by :

1. *Change in mood ;*
2. *Change in bodily feeling ;*
3. *Change in emotional expression and control.*

We shall select a few cases exhibiting emotional exaggeration, taking instances on the one hand where it is in accordance with the patient's inward feeling, and on the other where it is incongruous with his mood or the psychical content of the moment. One or two examples of the stolid type will also be furnished.

Case 5. S. C., male, age 19 ; duration of symptoms, two months ; type, astereognosis, cerebellar.

He smiled constantly during the examination. "During the past year my family and friends have all spoken of my smiling and laughing." He feels like smiling all the time, simply because he "feels so bright."

Case 21. (*see* page 14). The patient is always smiling and cannot control this expression. All questions are answered with a smile, which often passes into laughing without sufficient cause. She states she "has a good cry about once in five years" ; when this happens she cries for weeks at a time and is not able to stop. It was first noticed just after the onset of her illness ; she was working in a chemist's shop at the time and a woman brought in a prescription which somehow started her crying, and nothing would stop it for three weeks : she saw several doctors but "none could stop her crying." The emotional exaggeration, however, was not accompanied by any feeling of depression.

When describing these attacks of crying the patient was smiling and quietly laughing throughout.

Case 34. D. B., female, age 28 ; duration of symptoms, 8 years ; type, oculo-cerebello-spastic (advanced).

The patient is constantly smiling and laughing both with and without cause ; she does not cry and has no inclination to cry. She states that the outward expression is a reliable gauge as to her inward feeling, but she cannot control it. She has changed definitely in this regard from the commencement of her illness.

During a long examination it seemed as though there was a permanently established basic affect of continuous smiling with periodic exacerbations into laughter. These emotional rises came on at irregular intervals of half a minute to a minute and were without apparent cause.

Case 35. (*see* page 10). This patient smiles and laughs very easily and without cause ; she "wants to cry, but cannot." Instead of crying she finds that she expresses the emotion with laughter. "Her face is a smiling mask which covers her real emotions." Often depressed, during the examination she burst into laughter at frequent intervals, though in reality feeling sad. The change in this respect has been very obvious during the last six months.

Case 39. A. B., male, age 32 ; duration of symptoms, 18 months ; type, spastic.

The patient smiles and laughs constantly ; "it takes no effort for me to smile or laugh—in fact I can laugh at five o'clock in the morning." Even though "down in the mouth" he is never in tears. "A damned good laugh means more to me now than anything." There has been a definite alteration in this respect since the illness began.

During examination he kept laughing in an exaggerated way.

Case 42. E. C., male, age 36 ; duration of symptoms, 18 months ; type, spastic (unilateral, leg).

Since the commencement the patient has found that he smiles, laughs, and cries with much greater facility than before, and often without sufficient cause. During the interview he displayed the double affect of laughing and crying, there being more tears than laughter, and he became quite vexed with himself because he could not control his emotional expression.

CASE 52. B. T., female, age 33; duration of symptoms, 6 years; type, oculo-ataxic (with pain).

Often sad, depressed, and worried, the patient has frequently had thoughts of suicide; she is amused by nothing and cannot now see a joke. In respect of mood she has changed diametrically since the beginning of her illness. Notwithstanding the constant background of sombre mood and of depressing thoughts she smiles and laughs almost all the time, even more than she used to do when she was in perfect health. This also worries her, for "she cannot cry when she should," so that her outward expression means nothing and cannot be controlled. Here also is an absolute emotional change since the illness.

While talking of her suicidal thoughts her face is wreathed in smiles and she bursts into laughter, so that there is extreme incongruity between the emotional content and the affect or expression.

CASE 45. G. C., male, age 45; duration of symptoms, 14 months; type, oculo-cerebellar.

The patient complains of always being sad, miserable, and depressed. Formerly cheerful, he noticed the change of mood just before the first physical symptoms appeared.

He never smiles or laughs unnecessarily, nor does he cry. Always more or less of the stolid type in regard to emotional expression, he has not noticed any change in this respect since the illness began.

CASE 61. R. M., female, age 43; duration of symptoms, 3 years; type, spastic, with incontinence.

The patient feels now that her mood is one of unchanging sadness, unhappiness, and hopelessness. She never laughs or smiles or cries; since the beginning of her illness she has noticed less and less inclination either to smile or laugh; on the other hand, there has been no weeping, notwithstanding the depression of spirits. She can always control her emotional expression and considers it a reliable gauge to her feelings.

CASE 65. E. R., male, age 25; duration of symptoms, 2 years; type, cerebello-pontine.

Always cheerful and jolly, the patient laughs and smiles continuously, much more so than previously. He exhibits a sense of remarkable physical wellbeing (eutonia), and while being examined was constantly laughing. When asked about tears he said he cried for the first time for years about three weeks ago. "My chum died of consumption and I cried at his funeral"; while saying this he burst into peals of laughter.

ANALYSIS OF INDIVIDUAL SYMPTOMS.

We shall now attempt a somewhat closer analysis of the main affective symptoms which we have differentiated, examining also any interrelationship that they may appear to show. It is convenient to begin with the outward emotional expression, the affect, of the patients who suffer from the disease.

I. EXAGGERATION OF EMOTIONAL EXPRESSION.

As we have already seen, 95 per cent. of disseminated patients exhibit a quite obvious emotional overaction, 87 per cent. are aware of it, and in 97 per cent. control over it is lost or imperfect. In by far the greater number of the cases the expression is 'set' to smiles or laughter (71 per cent.); it is 'set' to tears in only three per cent.; in 19 per cent. laughing and crying

alternate. Only three cases have been found out of the series of one hundred where no particular emotional change in this respect has followed the illness.

With these figures before us, we are justified in the contention that the symptom is causally associated with the disease. No ascription to external circumstances such as environment, to factors such as the duration, degree, or neural type of the affection, to psychological determinants such as are mentioned in the questionnaire, to accidental matters such as the domestic, financial, etc., situation, can possibly explain all the data or offer a solution satisfying all our clinical instances. This being so, the question arises whether the affective expression does or does not correspond to the psychical content of the individual at the time of its exteriorisation, whether it is to be taken as indicative of the patient's mood or not, whether, in short, it is a neurological sign relatively empty of psychological meaning. In the appended Table XIII the term 'congruity' stands for harmony between the external expression and the internal emotional feeling.

TABLE XIII. RELATION OF EMOTIONAL EXPRESSION TO EMOTIONAL FEELING.

Type.	*Number of Cases.*
1. Congruity	34
2. Incongruity	48
3. Mixed (sometimes 1, sometimes 2)	15
4. Exceptional types	3
	100

The three exceptional cases are as follows: (1) according to the patient, the increased affect (laughing) was due to his increased capacity for seeing a joke, to augmentation of his " sense of humour " since the onset of his disease. This, however, may be pure rationalisation. (2) In one instance, the condition clearly approached that known as 'Witzelsucht' ('joking-ailment'), the patient treating everything in a jocular fashion, and turning serious things into a joke. (3) In one case, the symptom was associated with an incomplete thalamic syndrome.

In respect of the others, we note that in about one-third emotional expression was appropriate, in about one-half, inappropriate. Even when correct enough, however, it still showed the clinical features of exaggeration and of imperfect control; hence the difference from the normal is constituted solely by a distinction in control and in degree.

On the other hand, we wish to emphasise the fact that the clinical manifestations have seldom been such as to merit the description of *rire et pleurer spasmodiques*. In no more than a small minority was the laughter invincible, the tears torrential; much more commonly was the expression smiling, or tearful, with but occasional exacerbations. It rarely resembled that seen

with frequency in pseudobulbar paralysis—a distinction which cannot be without significance.

So pronounced is this facility of outward expression that we have long since come to regard it as of immediate diagnostic value; when in a young person answers to simple routine questions are accompanied by gratuitous and uncalled for smiles or laughs disseminated sclerosis at once becomes a diagnostic probability. In various of our cases facility and exaggeration of affective display have been the earliest symptoms of the malady, before any somatic neurological sign has made its appearance; further, once the symptom is established it remains a permanent feature of the disseminated syndrome. We examined a patient (Case 16) who was *in extremis* by reason of septic absorption from large bedsores and who died four days later; notwithstanding the desperate physical condition of the woman she said she felt "she would be all right later" and accompanied her talking with easy smiles and laughter. Clinical illustrations have already been furnished of the trifling nature of the stimuli which prove sufficient to set the patient off into laughter, or, on occasion, tears; indeed, in not a few instances the observer has been unaware of any cause, however insignificant, for the emotional exhibition. It would almost appear, in some cases, that mere use of the facial musculature in voluntary innervation, as in talking, is enough to precipitate involuntary (affective) innervation.

The possible pathogenesis of the symptom is discussed on a later page.

II. EMOTIONAL CONTENT (PREVAILING MOOD).

The all-important consideration in regard to the emotional content of the patients we have had under observation is formed by the fact that in 100 per cent. a change has taken place since the commencement of the illness. This change in mood, therefore, while not always in one and the same direction (emotional euphoria, 63 per cent.; emotional dysphoria, 10 per cent.; increased variability of mood, 25 per cent.), is as outstanding a feature of the disease as any symptom of the neurological series individually; it has, however, to be looked for. It has been found in the most unlikely subjects, and is independent of the clinical type of the affection and of its duration and degree. As with the emotional expression, it constitutes in some instances the earliest manifestation of the disease.

An instructive comparison can be made by a glance at Tables IV and IX above. From these it will be seen that while emotional depression, a sense of mental illbeing, characterises 10 per cent. of cases, in only three per cent. is it exteriorised in the form of persistent tears. That is to say, affective dysphoria must in a percentage of cases coexist with an emotional mechanism of expression that is set to smiling or laughter. Conversely, while in 63 per cent. euphoria sclerotica is predominant, in 71 per cent. the outward expression is one of constant smiling; in other words, more patients display outward emotionalism than are justified by their prevailing inward mood. Thus from

another standpoint the same conclusion is reached as is deducible from Table XIII, viz., that incongruity fairly often obtains as between mood and affect.

The alteration in prevailing mood has in many instances been noted not only by the patient but also by relatives and friends (cf. Case 74, p. 11); it has become so striking, in some cases, as to constitute almost a change in personality (cf. Case 1, p. 10). Marked fluctuations in mood, often abrupt, brief, and rather inexplicable, have characterised other cases (cf. Case 35, p. 10). Thus a young woman (Case 64) whose sole neurological symptoms consist of very mild spastic paraplegia of one year's duration, has changed from a bright, cheerful and optimistic person to being mournful and depressed; yet almost every afternoon she experiences a brief feeling of happiness and cheerfulness, which vanishes as abruptly as it comes. Conversely, another young woman (Case 73), who also suffers from mild non-progressive spastic paraplegia, feels continuously good-humoured and "jolly," but she has occasionally noticed, late in the afternoon, fleeting periods of "deep sadness" without any apparent cause or reason; they last only a few minutes and are then lost in her usual mood of cheerfulness.

We are well aware that variability of mood characterises many individuals who do not suffer from organic nervous disease, and that differing emotional types in this respect can be distinguished among normal persons; further, we do not ignore the importance of recognising constitutional or innate dispositions and temperaments behind the affective phenomena of our series of disseminated patients. But the fact remains that in every case it has been our endeavour to ascertain *changes* as compared with the years previous to the onset of the physical symptoms, and it is these definitely established changes which form an affective symptom of prime significance. Of the genuineness of this alteration of mood, whether in the direction of euphoria, dysphoria, or increased fluctuation, we have no doubt.

III. BODILY FEELING.

From what has already been said, the very frequent occurrence of a sense of physical wellbeing (84 per cent. of all cases) must be accepted as one of the remarkable and somewhat unexpected symptoms of this peculiar disease. Eutonia sclerotica has been noted in the most unlikely cases, and has on occasion provided a striking contrast when compared with the actual physical disability or incapacity, not to say paralysis, of the patients concerned. To some of the more intelligent it has appeared "almost unexplainable"; others it has actually misled into supposing that they "could do anything"—until they make the effort.

We note in the first place that this symptom is independent of the neurological type of the affection, as well as of its duration and degree. It is to be found at early stages and at late. In the next place, it is not conditioned by mental euphoria, since a larger percentage exhibit the former symptom than the latter (63 per cent.). Some patients feel well physically but not

mentally, though this particular combination is rare. Again, once the symptom is established it does not tend either to disappear or to become subsequently modified. Even the patient whose case has already been made the subject of allusion (Case 16, page 20) and who was almost moribund when examined, declared that physically she " felt all right " and was neither tired nor weary but quite at her ease.

Naturally enough, perhaps, most of those who have been questioned have stated they are most conscious of this bodily wellbeing when in bed and at rest ; a fair number, further, have commented on the fact that it seems to lessen or vanish when they move their limbs or body, presumably since it then comes into conflict with somatic actualities. However this may be, it is clearly more than a mere restfulness of body, for again and again we have been assured it is such that the patient feels he could get up and do anything he wanted. Once more, while the sense of eutonia sclerotica is sometimes interrupted when painful involuntary flexor spasms occur, as in some paraplegic cases, it is not constituted negatively by a mere absence of physical pain ; it is a positive and not a negative symptom. The patient is conscious of an apparent physical energy and power which he does not in fact possess (cf. Case 83, page 14).

We have found a physical dystonia in only six per cent. of all cases ; the physical malaise of these six seems to depend, it is true, largely on persistent pain, though not entirely so. In one instance it was definitely associated with sleeplessness. Searching for a possible cause in the localisation type of the affection, we have not been able to satisfy ourselves that it is the outcome of any special visceral involvement of neural origin ; the pontobulbar group do not exhibit it.

When the symptom of eutonia sclerotica is thus surveyed, its independence of any special causative symptom or symptom-complex seems definitely determined. It is common to all types and is met with at all stages and is in no sense merely the outcome of a particular combination of mental and somatic states. We consider it is a primary phenomenon, and not secondary, and in this respect it takes its place with the other affective symptoms under review.

IV. OPTIMISM (SPES SCLEROTICA).

From Table VI above it will be seen that the great majority of disseminated patients (84 per cent.) are optimistic about the future and their prospects of ultimate recovery, a minority (15 per cent.) being less hopeful, or pessimistic. The former very high percentage is patently more than might reasonably be expected when the individual cases are reviewed as regards their degree of involvement of the central nervous system, and suggests the conclusion that in many instances this spes sclerotica is itself a symptom, comparable in some ways to what is known to obtain in general paralysis and in advancing cachectic conditions such as pulmonary phthisis. Indeed, it does not appear to be greatly different from the latter, so-called spes phthisica, but it is not so much

related to the facts as they are met with in cases of the former. Our intention to restrict the term 'euphoria' to mental wellbeing has already been made sufficiently clear; in general paralysis the patient often feels (unreasonably) fit, mentally and physically, but this euphoria is not the same as optimism, and while in a few of our cases the condition does in fact resemble what is frequently encountered in general paralysis, in the majority it is dissimilar.

Analysing this spes sclerotica as it is observed in our series, we cannot see that it is dependent on, or arises out of, existing euphoria of mood. It is more frequent than the latter, as a fact, and if occasionally appearing to be the outcome of prevailing euphoria it is so in only minor degree. In our opinion it is a purely mental phenomenon, whereas, as will be pointed out shortly, the euphoria may in one sense be regarded as an erroneous interpretation of physical stimuli, as though feeling-tone were so raised as to be comparable to certain conditions of mild narcosis or mild alcoholism. Similarly, we do not find that spes sclerotica is conditioned by the occurrence of physical eutonia, its relation to the latter being no more than incidental, as in the case of euphoria. The association of all three, however, is at once very obvious, as our Tables prove.

PATHOGENESIS OF AFFECTIVE SYMPTOMS.

Leaving this somewhat detailed analysis of the clinical data concerning changes in mood, expression, and bodily feeling, we must now approach the question of their possible pathogenesis, with which is bound up that of their possible relation to disorder of cerebral mechanisms. At the outset we wish to make our position clear. Disseminated sclerosis is a serious and, so far, incurable, organic disease of the central nervous system. With no preconceived ideas as to the etiology of the remarkable series of affective symptoms which characterise that disease more definitely even than nystagmus, tremor, dysarthria, or paraplegia, we have failed to find any psychical determinants worthy of the name for them. It has often been pointed out that from the neuropathological side the affection is one practically *sui generis*; from the standpoint of its affective symptomatology it is equally unique and peculiar. The consensus of present day opinion assigns to it a toxic or toxi-infective origin; our attempt at an explanation of the affective symptoms will be based on the hypothesis that, like the somatic symptoms, they arise from invasion of cerebral mechanisms by a toxic agent. No convincing argument for a psychogenic origin can be advanced, as we hold; on the contrary, the whole trend of clinical investigation suggests the opposite. In addition to the psychological and neurological examinations specified, we have, where there was the slightest indication of possible intellectual defect or psychotic taint, submitted such cases to a formal psychiatric examination, and have kept them under close observation in the hospital wards for a suitable period. These cases, moreover, were studied more elaborately than the others in order to determine whether or not there might be some dormant personality disturbance which might account for the facts of the emotional series.

After careful observation we were able to demonstrate, in only two cases, any signs of actual intellectual deterioration. In one case there was a definite memory defect, with failure of discriminatory powers and judgment. This case was somewhat suggestive of a mild degree of senile dementia. The second case was very much like the first in showing a slight degree of intellectual enfeeblement, with defects of memory as the most positive symptoms. In none of our cases were we able to demonstrate delusional or hallucinatory tendencies. No cases showed evidence of schizoid cleavage. In a relatively small number of cases attention seemed somewhat below the normal level; this phenomenon, however, was put in its proper place by careful observation, and proved to be due to a hyperreceptivity both in the psychic and physical fields which, for the moment, produced an apparent lowering of attention. In a few cases this symptom was somewhat comparable to the condition found in a mild hypomania. We found that retention was good in all cases except the two in which we found actual deterioration. As we were aware that in the past some observers had noted a mental condition which they described as hysteria, we were especially careful to be on the lookout for suggestive symptoms. In not one case in our group were we able to demonstrate a symptom-complex which we could rightfully call hysteria. It is true that the vast majority of our cases have shown an emotional facility which is superficially somewhat like hysteria; however, none has exhibited a narrowing of consciousness or other psychic limitation similar to that found in hysteria or any other psychoneurotic symptom-complex. A few cases offer a limited similarity in emotional expression to that exhibited in mild affective states, but the majority have shown an affective picture which is like no other psychiatric entity that we know of at present.

(1) *Emotional Overaction in Expression.*—One of us has already studied the whole question of involuntary or pathological laughing and crying in a paper which appeared in this JOURNAL,[1] and has there adduced evidence which goes to prove that the neural path for 'involuntary' innervation of the facial (and other) musculatures in emotional expression is distinct from that for 'voluntary' excitation of the same muscular groups, which is unquestionably the corticopontine, corticobulbar, and corticospinal tract. As a general rule, emotional overaction is most in evidence when the 'voluntary' corticifugal paths exercise imperfect control over pontine and bulbar motor centres; this is seen *par excellence* in pseudobulbar paralysis. On the other hand, exaggerated emotional display may appear in the course of diseases in which bilateral 'voluntary' control is not in any way, or not seemingly, impaired by the morbid state. In this case, as, indeed, in normal persons, "the emotional stimuli evidently overwhelm the control mechanism, and we must suppose either an irresistible quality in them, heightened by disease, or a constitutional peculiarity on the part of the individual—disease apart, or defect of cortical control not discoverable in tests for volitional facial innervation, or, perhaps,

defect on the afferent side to the cortical emotional ' centres ' from which the faciorespiratory paths arise."

These considerations undoubtedly apply to disseminated sclerosis, for while we have found no apparent ' voluntary ' facial weakness in our patients, no less than 97 per cent. of them remark that their control over emotional expression is lost or imperfect. Constitutional peculiarities can be excluded, in view of the number of cases investigated, and there remains the possibility either of heightening of the effect of ordinary emotional stimuli as the result of central disease, or of disorder of cortical control for the same reason. We know that the afferent paths from various peripheral organs (eye, skin, etc.) lead through the optic thalamus, and that the affective stimulus in any given instance must be cortically appreciated. According to the hypothesis advanced in the paper above referred to, the outward expression of emotion takes place via descending paths from the cortex (not the pyramidal cortex) which skirt the lower mesial margin of the thalamus on their way to pontine and bulbar motor centres. It is stated in the same place that " on the afferent side neuronal systems are relayed in the thalamus, but it is not certain if the same obtains on the efferent side, hence the possibility of a ' short-circuit ' from sensory to motor path in that ganglion itself remains undecided. . . ' It is conceivable, therefore, as some have maintained, that failure of corti. cothalamic inhibition is responsible for undue ' liveliness ' of the thalamus- and for the exhibition of involuntary emotional exaggeration."

So far, then, since much uncertainty prevails, the most that can be said is, that affective expression may be facilitated and exaggerated because afferent stimuli are qualitatively altered (heightened) in consequence of thalamic dysfunction, or because cortical control over this expression (which, as stated above, is mediated *ex hypothesi* via efferent non-pyramidal corticifugal paths that pass by the thalamus on their way to lower motor centres), is disturbed, or, conceivably, because direct corticothalamic inhibition is at fault, allowing a ' short-circuit ' from afferent to efferent side at that thalamic level. We are not prepared at present to advocate one view specifically in opposition to the others ; we are, however, impressed by the fact that it seems difficult to exclude thalamic participation from any of them.

We next direct particular attention to the importance of realising that it is the palæothalamus which occupies that portion of the whole ganglion that borders on the third ventricle and is covered by ventricular ependyma. Now, according to Tilney and Riley[12], the palæothalamus " seems to be invested with a functional responsibility related to the development of the emotions and the emotive expressions." If, then, this part of the organ were physiologically released, or heightened in activity, or its cortical associations impaired, or if afferent stimuli to the cortex were such as to modify the corresponding efferent return via the palæothalamus to pontobulbar centres, then the exteriorisation of emotion might be clearly exaggerated.

Developing this hypothesis further, our next concern is with the pathology

of the disease. It is a most significant fact, in our opinion, that periventricular sclerosis is an almost constant finding in the affection. For example, Dawson,[13] whose pathological work on disseminated sclerosis sets the standard, examined nine cases completely, finding periventricular sclerosis marked in six, less marked in two, and of negligible degree in only one. Similar results have been recorded by Lhermitte.[14] Only one conclusion is possible, that the ventricular ependyma and subependymal tissues are invaded either by morbid agents in a toxic cerebrospinal fluid, or via terminal arterioles reaching to the same structures from the central arterial systems of the brain. While Dawson, as may be gathered from his monograph, rather favours the latter, we are of the opinion that the balance of evidence pleads in favour of the former. In any case, when we remember clinically how frequently emotional overaction is an early sign and how constantly it reveals itself in the course of the disease whatever the precise neurological type, we are inclined to entertain the theory that this particularly common, early, and pronounced clinical symptom is somehow associated with dysfunction of the palæothalamus and that this, in its turn, is to be attributed to early invasion of that structure or of its associational tracts by the postulated virus of the disease acting via the ventricular ependyma.

The more closely this hypothesis is examined the more clearly, we believe, will it be seen to furnish a possible explanation of the known clinical affective data of this peculiar, if not indeed unique, nervous disease.

(2) *Eutonia Sclerotica.*—We are on more debateable ground when we seek a possible explanation, in terms of neural mechanism, for that sense of physical wellbeing which is characteristic of the great majority of the cases in the present series of one hundred.

The feeling of physical eutonia in the normal individual must be the outcome of the totality of afferent impressions from somatic and visceral receptors. It has been described as a massive, diffuse sensory experience, a ' vital feeling,' a ' feeling of bodily life ' ; one of its pleasant forms is the reaction of a healthy body after physical exercise, or the ' braced ' feeling attributed to a sojourn in invigorating air. Numerous everyday expressions are in vogue to indicate its reality ; conversely, in its unpleasant form it is spoken of familiarly as being a feeling that one is ' out of sorts,' ' run down,' ' slack,' etc. For this vital feeling the term coenaesthesis is sometimes employed ; the German expression is *Gemeingefühl.* We do not know that the individual waves of this sea of feeling can be differentiated ; besides, it is for our present purpose immaterial to attempt any analysis of organic sensation except in so far as it has a bearing on the problem before us. We do not require to examine whether some of our organic ' feelings ' are nothing more than ' sensations,' or whether in them the affective element can be distinguished from what may be called the presentational element. Suffice it to say that bodily ' feeling ' is probably based largely on organic ' sensations ' and that its reality, in respect of intensity, variability, and capacity for impressing itself on consciousness, is a matter of common experience.

Still speaking physiologically, we know that viscero-sensory and somatic sensory impressions pass to the optic thalamus by the fillet or otherwise, and it is again immaterial for the nonce whether all or some of these are appreciated in consciousness without their extending beyond that ganglion. At what stage or in what fashion organic 'sensations' become united with, or blended into, a general pleasant (or unpleasant) 'feeling-tone' is not determined, but scarcely concerns the present argument. It can, however, be maintained with some show of credibility that one of the levels at which abnormalities of the sense of physical bienaise or malaise may arise is the thalamic level.

Now if a patient suffering from disseminated sclerosis experiences so pronounced a feeling of physical wellbeing as is patently out of harmony with his neurological condition, a twofold explanation is possible; either the sum of afferent impressions streaming to the thalamus is quantitatively or qualitatively altered, or, being more or less normal, is misinterpreted in consciousness (cortically or thalamically, so to say) as a consequence of a diseased condition at one or other of these two neural stations. From the viewpoint of neuropathology, the cortex is not one of the common sites for structural invasion in the case of the disease under discussion, although, as is known, it is on occasion implicated; its involvement is never so regular a feature as is the widespread periventricular process already made the subject of allusion. In all probability, therefore, seeing that eutonia sclerotica characterises no less than 84 per cent. of all cases, we are justified in assuming that its appearance is causally linked to disorder of function of the thalamus. Since careful examination of all our cases from this special standpoint has failed to reveal any obvious visceral, or, for that matter, neuroglandular dysfunction, we see no reason to suppose that afferent impressions reaching the thalamus have undergone any change in respect of either quantity or quality; that is to say, we have found no constant alteration of bodily function with which alteration of afferents might be correlated. We are accordingly driven to the conclusion that, if the explanation of the occurrence of normal bodily feeling outlined above is acceptable, its apparent undue intensity or exaggeration in many cases, constituting an incongruous eutonia or bienaise, must be the result of misinterpretation of incoming impressions at, and from, the level of the optic thalamus. To attribute this defect of appreciation to a dynamic change in thalamic function, the sequel to local toxic action, is no doubt a vague way of speaking; but we have tried to indicate the steps which lead us to offer this suggested explanation and, after all, we have to seek a plausible theory for the occurrence of a symptom which is as definite as nystagmus or an extensor response, and even more frequent.

(3) *Emotional Content; Euphoria and Dysphoria Sclerotica.*—The problem set us becomes no easier when we approach the question of a possible explanation of the prevailing mood of disseminated patients in terms of neural mechanism. Indeed, in the present state of knowledge any such effort at correlation may be purely illusory.

It cannot be denied that bodily states may, and often do, conduce to the development of an emotional mood, as when irritability or bad temper is the outcome of dyspepsia, or hilarity the sequel to alcoholic imbibition. A distinction should be drawn, in this connection, between a temporary or transient emotional mood and a prevailing emotional disposition. Now in the great majority of the cases of this series we have been struck in the course of examination with the fact that it is precisely the latter which has become modified in association with the development of the disease; again and again our patients have assured us of the existence of a prevailing, persisting, continuous disposition to cheerfulness, say, or, in a minority, to low-spiritedness and depression. Whatever comes along, real or imaginary, is coloured by this persisting emotional disposition; if the patient is happy, he turns every trifle into a cause of further happiness; if miserable, everything makes him more so. On the other hand, pronounced fluctuations of mood certainly characterise a percentage of our cases, and these are not to be ignored in discussion.

For reasons already given, change in, or intensification of previously existing, emotional disposition cannot be assigned to any recognisable factor other than the disease itself, but since to assign affective disposition a locus in the nervous system is a precarious proceeding in states of health, we have no data to rely on if we wish to associate changes in it with changes following on invasion of that system by a virus capable of toxic action on neuronic groups. Dr. C. K. Mills once declared he is not one of those who believe that the problem of emotion, or of any other great mental process, is to be explained by regarding it in some vague way as a complex expression of the action of the cerebral cortex as a whole, a declaration with which we are in complete agreement. At the same time, the study of the emotions has not advanced far enough to enable any conclusions to be drawn, for our present purpose, that are other than purely hypothetical.

Comment has already been made on the resemblance which not a few of our cases have exhibited, in respect of prevailing emotional mood, to certain mild states of narcosis or of alcoholism. It is as though the patients see everything of roseate hue; all unpleasantness is excluded; as "all seems yellow to the jaundiced eye," so to many patients of the euphoric type serenity and tranquillity are on every hand. Leaving the language of metaphor, we say that the influence of a toxic or toxi-infective disease is in many instances to produce a persisting emotional disposition which is radically the opposite of what previously obtained (as numerous cases testify); and it is at least conceivable that in part this is the outcome of an alteration in feeling-tone which itself is based on misinterpretation of physical stimuli. It cannot be a mere coincidence that change in prevailing mood is as regularly to be expected in the average case of the disease as are those other affective symptoms for which we have attempted to demonstrate a possible association with disorder of thalamic function of toxic or toxi-structural origin.

This problem of possible localisation for emotional mood, however, may be considered from another angle. The fact that only two out of 100 consecutive cases exhibit intellectual deterioration, while 100 per cent. show definite change in emotional disposition, is very impressive. No other deduction is permissible than that in the average case the toxin affects the emotional function of the brain while it does not affect the intellectual function. With this clinical generalisation we place the pathological generalisation that the ventricular system is invaded, and certain basal areas thereby, very much more than the cortical superficies. We believe, further, in the law of the specific energy of the nerve cell, as of all somatic cells; that is to say, nerve-cells subserving intellectual function cannot have another function in addition, e.g., any connected with the emotional sphere. Interesting developments in this respect have recently been made by Thalbitzer,[15] who says: "We must therefore consider it as definitely settled that feeling is not a by-product of brain-cells which have another function, but that if we recognise feeling to be an elementary psychic function we must also acknowledge that it proceeds from its own cells which are collected in a 'feeling-centre.'" We are of the opinion that the clinical data collected in this paper substantiate the conclusions of Thalbitzer, based largely on his psychiatric studies; and further, we wish to point out that in this connexion the phenomena of the disease may be usefully contrasted with those of certain psychotic states, in which definite dulling or even loss of the emotional side of the patient's life occurs with relatively normal intellectual conservation.

In fact, though we are not prepared to pursue this line of argument further at the present time, it may well turn out that the clinical data of disseminated sclerosis, as far as the affective sphere is concerned, will throw a light on the pathogenesis of the emotional phenomena of various psychoses and psychoneuroses, in which that sphere is definitely disordered. Since such changes can be assigned, in this disease, to neurological and not psychological determinants, it is legitimate to suggest that the analogy is applicable to other diseased conditions not usually allowed, or not as yet shown, to have a neural basis. We have been impressed many times by the striking, if fleeting, similarity between some of the mental phenomena in our cases and those of other well-known, psychiatric, symptom-groups. Collaborative study in this respect by the neurologist and the psychiatrist may elicit valuable information.

CONCLUSIONS.

1. One hundred consecutive cases of disseminated sclerosis of both sexes, of great variability as regards duration, degree, and clinical type, have been submitted to a complete neurological and psychological investigation.

2. The vast majority of these cases have shown changes in (*a*) prevailing emotional disposition, (*b*) emotional expression and control, (*c*) sense of physical wellbeing.

3. These affective symptoms are characteristic of the disease, are primary

or direct results of the disease-processes, and are completely independent of duration, degree, or clinical type.

4. They are far more frequent than any single symptom of the neurological series, and constitute a diagnostic triad of greater value than any neurological symptom-complex.

5. In a fair number of instances they precede the appearance of any somatic neurological symptom, subjective or objective.

6. The common feeling of emotional or affective wellbeing may be designated euphoria sclerotica, and that of physical wellbeing eutonia sclerotica. The undue optimism exhibited by a majority of patients may be called spes sclerotica.

7. In comparison with these affective symptoms, intellectual disorders are minimal and negligible.

8. We associate the invasion of the affective sphere with the known pathological fact that the disease almost constantly shows a periventricular, subependymal spread, and the relative integrity of the intellectual faculties with the relative conservation of the cortex, unless, indeed, the disease is far advanced.

9. Evidence is adduced which suggests that the affective symptoms are the outcome of invasion of the palæothalamus by the morbid process.

10. The affective symptoms may arise before structural disease of the neuraxis is clinically apparent, and can be set down to dynamic alteration of function of toxic origin.

11. By analogy, it may be that certain psychoses and psychoneuroses characterised by changes in the affective field have a toxic or toxi-structural and not a psychopathological basis.

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THE PSYCHOLOGY OF CHARACTER*—I.

By WILLIAM BROWN, London and Oxford.

Prof. W. McDougall's recent book, *An Outline of Psychology*, may be regarded as the latest of a series of expositions of the structure and functioning of the mind, but despite its manifest excellences there can be little doubt that in the future systematic psychologists will have to take very much more account of so-called 'deep analysis' than they have hitherto been able to do. In his *Outline* we have the most complete analysis of the mind up to date along the lines of ordinary normal psychology, using material and data obtainable by anyone who restricts his attention to the study of his own consciousness and of the behaviour of other normal human beings and animals. Deep analysis, however, is not content to observe the surface of the mind, but pushes enquiry further and further back; and, in pushing that enquiry back, obtains by its own methods a greater and greater wealth of material, and draws conclusions from that material according to certain laws, comparing it also with material obtained by close and prolonged studies of pathological cases. Such a method of deep analysis throws a somewhat different light on the whole matter. It is not that we wish to explain the normal in terms of the abnormal, but these great experiments made by nature upon the human mind do magnify certain lines of functioning, and so make them observable, whereas in the past they have been overlooked.

It will be remembered that McDougall's general conception of the structure of the mind is that it is built upon a foundation of instinctive dispositions. These dispositions are conative in nature, they show characteristics of purpose, and reveal themselves in consciousness as different forms of emotional activity; so that we have, corresponding to various fundamental instincts, various fundamental forms of emotion. After these fundamental instincts have been discovered and enumerated, McDougall proceeds to describe what he calls secondary emotions, which are due to the simultaneous activity of two or more instinctive dispositions. As an example of such an emotional compound we may take the anger and disgust felt towards anyone who has been guilty of a mean action. That feeling carries with it two corresponding impulses: anger—to destroy or injure the person; and disgust—to keep clear of, and have nothing to do with, him. And then McDougall proceeds in his latest book to improve upon the system of emotions he gives in his *Social Psychology* by bringing in derived emotions; and this is a very important class, because it shows that he is not unaware of modes of production of emotion which psychopathology has forced upon our notice for some years past.

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These derived emotions are, for example, such emotions as hope, expectation, anxiety, surprise, despondency, despair. Such emotions do not seem to follow his rule of being the subjective aspect of instinctive activities. If you look closely, you see they are all related to one fundamental form of mental activity—desire. In fact, they have been stated by A. F. Shand in his *Foundations of Character*, under the heading "Emotions of Desire." These emotions are aroused in relation to the degree of success or failure of any desire in achieving or attaining its end. If the end seems likely to be attained, hope springs up in the person's mind; complete attainment brings joy. With the possibility of failure there arises a feeling of anxiety; when the prospects of failure become more pronounced, despondency; when failure seems inevitable, despair. Now, compare these emotions with that of anger, which accompanies the combative instinct. Here in regard to the emotion of anger, McDougall himself admits that it is related to or results from the thwarting of other instinctive activities. If these activities are thwarted or hindered the feeling of anger may be aroused or stimulated. But he will not admit that a similar situation is to be found in regard to the emotion of fear. He correlates the emotion of fear with the instinct of escape, and he considers that it is fully explainable in terms of the instinct of escape.

The obvious objection to such a view is that, so far as the instinct of escape is working according to plan, the individual does not experience fear. The man escaping from his pursuers is concentrating his attention on what he is doing, e.g., leaping from crag to crag; he has no time to experience fear. In a way McDougall admits that he may not really feel fear at that time, but insists that the fear is there if he had the opportunity to look more closely into his mind. But it is not a question of not noticing the fear; it is not there at all. When a man is successful in his escape he may not find any trace of fear. Soldiers have often verified this in the course of a war. They are so busy carrying out their job that they have not had time or occasion to feel fear. But if they are in a tight corner where no means of escape offers itself, they do feel fear. Fear, as such, in the main is similar to members of this class of derived emotions. It arises from the thwarting of the instinct of escape. Besides that, I have no doubt that it tends to be aroused when danger threatens, when the instinct of escape is also aroused. A certain amount of fear arises as a danger signal. The mind is thus woken up, but it passes into much more extreme forms of fear and terror when the means of escape are cut off or are problematical.

And then, if we look down McDougall's lists of primary emotions, opposite to the gregarious instinct we find that he puts, not the emotion corresponding to the gregarious instinct, whatever that may be, but the various emotions that arise in the mind when the gregarious instinct is thwarted or interfered with. If the gregarious animal is separated from the herd or flock that animal feels restless, lonely and greatly disturbed; and this emotion seems to be what McDougall has in mind as the emotion accompanying the functioning of

gregariousness. I think it would rather be a feeling of pleasure that people seem to experience in going e.g. to a political meeting or attending a theatre or concert, a feeling of union with their fellows; but the fact that he has to emphasise in his list just the contrary emotions—those that arise when the instinct is not satisfied—gives us a further hint of a kind of classification which is different from his own, and which is more in harmony with the usual view of emotion—the view that it is a kind of friction in the mental machinery. This, no doubt, was at the back of the minds of the philosophers of old who considered the state of being free from emotion as the happiest state; otherwise we have not complete control of our mind; it is a nuisance to feel emotion.

Probably the truth lies between the two extremes. A great deal of emotion is undoubtedly the result of mental conflict, although we must admit that, even where there is no conflict, in certain cases there is emotion. It would not be difficult to pick out from McDougall's list those instinctive emotions and dispositions which seem to be valid independently of any kind of conflict, but they would be small in number. The majority of them do arise from conflict. Of course, in psychopathology this factor of mental conflict is all-important. The symptoms of the psychoneurotic can be expressed in general as a perverted or inadequate means of solving, overcoming, or escaping from the stress of mental conflict—of saving the patient from himself. We shall have to consider that more fully later. Keeping to our task of dealing with McDougall's system, we pass from this important class of derived emotions to the emotions that are aroused within a sentiment. A sentiment is an organised system of emotional dispositions centred about the idea of some object, and certain emotional experiences can only be felt when a sentiment of that kind is present. For example, the emotion of reproach is different from the emotional experience of anger; and yet it is not a blending of anger with any other specific emotion. It is the arousing of the emotion of anger within the sentiment of love. If a stranger does us an injury or displeases us in any way, we simply feel anger towards him; but, if a dearly loved friend does something to hurt our feelings or disappoint us, we feel reproach. There is the feeling of anger, but softened by the sentiment of affection or love, which involves the potentiality of a large number of different emotions experienced under different circumstances. Only where a sentiment is present would such feelings be experienced.

Our present purpose, however, is not to enumerate the different forms of feeling, but to consider general principles of mental organisation. McDougall has applied the doctrine of the sentiments in dealing with the difficult problem of volition, particularly in cases of so-called hard choice, where the individual is moved simultaneously in two directions; in one direction by the very intense native propensity of a fundamental instinct accompanied by a strong feeling tone, and in an opposite direction by an impulse of a more ideal nature, which seems to carry less energy with it, and yet may win the day. William James, faced with this problem, explained it in terms of a *fiat* of the will.

His view was that, if this propensity on the one side was stronger in itself than the motive to act according to an ideal of conduct, the ideal motive being accompanied by a much less vivid feeling would be overwhelmed by this strong native propensity; but that the man of strong will overcomes such native propensity by bringing in also something additional, a fiat of the will. McDougall is not satisfied with this solution. He asks whence comes the energy of this effort of the will, and considers that he can find it in the energy represented by a fundamental sentiment which he calls the 'self-regarding sentiment.' A man has strength of character in so far as he has organised his emotional dispositions about the idea of himself in the form of the self-regarding sentiment; and in a case of hard choice, he brings this self-regarding sentiment into activity. This is the source of the energy which, as an effort of will, reinforces the individual's ideal impulse in its conflict with native propensity.

This is perhaps a more detailed and accurate explanation of volitional activity than has hitherto been given in psychological text-books. It certainly goes one better than James, and at any rate it has the courage of entering into detail; but yet it strikes one as being far too mechanical to be a worthy description of such a complicated organisation as that of the human mind. The truth probably is that the will—volition—is the entire mind in action in its most complete development, as a harmoniously working unity, and that within this unity of the mind there are various levels corresponding to different successive stages of development of mental power. The lowest level is the animal level of instinct and appetite. Above that you come to the level of intellectualism, or generalisation of wishes and desires; and, through the interaction, as it were, of knowledge on the one side and various individual conative systems of the mind on the other, there develops an organisation possessing and showing a greater and greater degree of freedom in that it becomes more and more relatively independent of external events as such. That is to say, the mind becomes more and more self-determined in the course of its development and thus manufactures freedom. Freedom is a characteristic that develops. The mind starts with a minimum of freedom which is present in the simplest form of mental reaction, i.e., in the purposiveness which is to be seen in all behaviour. It develops this in its own way, and, when you have a case of so-called hard choice occurring, you really have one of the lower levels of organisation struggling against the higher organisation; and, though on the surface, in consciousness, it may make a great deal of fuss, as it were, and may seem to have a great deal of power at its disposal, yet actually it is very much weaker than the rest of the mind. The latter has reserves of power which deal with it; just as after a wound, although the bodily organisation shows a rise in temperature and the wound itself looks ugly and attracts attention, nevertheless, the rest of the body, the healthy part, is destined to win the battle with it.

We must now turn to another side of the structure of the mind—the

cognitive side. Here we have a further very illuminating suggestion from Prof. McDougall. He cogently argues that an individual's knowledge accumulates in the form of cognitive dispositions. Just as the active side of his mind rises from the better organisation of the conative dispositions of instinct, so on the side of knowledge the individual gradually builds up an organised system of cognitive dispositions. He does this, not so much by observing different individual objects in space, comparing them with one another and so getting more and more general ideas, as we say, of objects; passing, for instance, from different kinds of dogs to a conception of dogs in general, then dogs, cats, horses, etc., on to the idea of animals in general. Rather, he begins in the other way with a generalised experience, and learns to differentiate that experience by noting in the course of his life more and more carefully the points of difference between objects. The tendency in the young child is to generalise, but not in the logical sense. It is inclined to overlook differences at first and to classify different things together; then gradually, by noticing differences in relation to its needs (because it only notices owing to its interest in the object), it learns to appreciate variety. But beside this process of differentiation there occurs assimilation and apperception, where resemblances are observed between different objects; so that by slow degrees the total system of knowledge of the individual takes a form analogous to that of a tree with its main stem, branches, twigs and terminal leaves, corresponding to the general conception of objects, and the existence of the different kinds of laws in different sciences. This is merely to say that this systematic knowledge is a systematic arrangement, as it were, of cognitive dispositions; and the way in which the individual acquires this systematic arrangement of cognitive dispositions is through the processes of differentiation, apperception and association.

Nevertheless, in addition to this kind of system, you have also the historica system. The individual lives his life from day to day, various incidents occur, these incidents are in a certain sense retained in memory, and knowledge is laid down, as it were, in that form. This historical kind of experience is not, however, wholly unrelated to the other form, which is not itself historical, but, as it were, *sub specie æternitatis*—the general knowledge of laws and properties, etc., of things and objects, animate and inanimate, and not the actual working of the mind at any point which it has reached. Take an individual at the age of twenty-six or so. He has these various cognitive dispositions laid down in the course of his life, and his reaction to his environment has reference to both these systems. He reacts according to his own individual experience, and also according to his scientific knowledge, which has been acquired partly by himself, by experiment, etc., and partly from what he has read in books. It is essential to note that both systems of cognitive dispositions have become linked up with conative dispositions. He has acquired likes and dislikes for different branches of knowledge and also in relation to incidents in his own life. And it is when we consider the relation of

the cognitive dispositions to conative dispositions that we are facing the real problem of voluntary action.

Individual acts, then, occur with reference to knowledge, on the one side, and wishes, desires, strivings, etc., on the other. These are the sentiments, to which we have been already referred, examples of inter-organisation of cognitive and conative dispositions. But we find that in the individual, besides these healthy sentiments, which are normal features of the mind, there is a tendency for abnormal unhealthy mental systems to be produced in the mind corresponding to painful experiences of the past. The individual has had, e.g., a painful experience of a frightening nature. He has been disturbed by a certain event in his life, and later on his whole mind tends to react to analogous situations with reference to the previous fright. Such abnormal systems are called complexes, and the word complex should, I think, be restricted to abnormal systems. We should not use the term complex if we mean the normal systems for which the technical term would be sentiment. But where we find pathological disturbance of the individual's judgment, which puts him out of harmony with his environment and prevents him from reacting adequately to a situation, then we would call it a complex. He has had an unfortunate experience, and has developed, let us say, a complex against a certain type of individual, so that he does not do himself justice later on when he meets individuals of the same profession or class as the one who has disturbed his mind previously A complex is essentially of the nature of a fixation, anchoring the mind down and preventing it from moving onward, whereas we can look upon sentiment as a healthy growth of the mind. Likes and dislikes with reference to adequate experience, i.e., the various sentiments, grow by including a larger and larger number of objects within themselves, and by being adjusted more and more adequately to these objects. Through them the mind gains greater and greater freedom, a wider scope of activity, and a greater and greater degree of smoothness, of harmonious working. A complex, on the other hand, ties the individual down to the accident that aroused the complex ; it is a kind of precipitation of the mind. The mind is held down and cannot develop further. Other parts of the mind do go on developing, but that particular part is fixed in such a way that when the complex is struck on, as we say, that is, stimulated by some chance event, the whole mind reacts just exclusively and explosively to that complex. The individual explodes with anger without clearly knowing why he should be angry.

We may now ask : why should there be this difference between complexes and sentiments ? It is the difference between repression and unrepression—the complex is repressed experience. It is not normal, not healthy, not fully justified ; it has not been adequately faced by the individual but has been held in check in a quasi-mechanical way. He has lost the power of normal integration of consciousness. Sentiment can, under appropriate conditions, produce the various emotions according to rule, but in the case of a complex what is repressed is, not so much the emotion, but rather the cognitive disposi-

tion, i.e., the original experience is withdrawn from attentive control. The mind has lost the faculty of recalling the original experience, although the corresponding emotional reaction can be rearoused. In certain situations, a person flies into a rage and does not fully realise why. He acts mechanically, like an automaton, instead of like a free human being. You analyse his mind in order to overcome the repression, to bring these forgotten experiences into full consciousness, and in that way the complex is got rid of.

And then the interesting question arises about the relationship of complexes to sentiments as regards analysis. Complexes can be dealt with by analysis ; you can resolve a complex. Now can the same thing be done with our sentiments ? Theoretically it might be possible. We might look upon sentiment as a much more fundamental, thoroughgoing, deeply-founded system of interests, a strong organisation which needs very deep and prolonged analysis for disintegration. Friendships for different people and interests which we have formed in different kinds of subjects or causes or ideals, ethical, aesthetical, etc.—all these are of the nature of sentiments. In a long analysis, they might possibly be interfered with. I think we must leave it as a possibility which will be decided empirically in the course of further experience of long analyses. We know that a number of people have been analysed for a very long time, and some are still being analysed ; and it is quite probable that, in their enthusiasm for psychoanalysis, some psychoanalysts will persevere with analysis of their clients—subjects who are not necessarily patients—for longer and longer periods of time. Short analyses may extend over six months or more, deeper analyses may go on for two or three years or even longer, and it would be interesting to see what the effects of such analyses upon sentiments are. One meets with special cases from time to time where the analysis has proved to be extremely disturbing, where the individual has needed further help to restore the balance of his mind. We know also, and are prepared for, the possibility that, where patients are on the verge of severe mental breakdown, an analysis might suffice to push them over the border. It is an obvious danger that every psychoanalyst would admit. It is possible that there are limits to analysis, though on the face of it, this seems fairly improbable. A person analysed may have derived a certain amount of benefit, not only as regards the symptoms which he may have shown, but also in getting a deeper insight into his mind, and learning to use it more and more adequately by getting rid of the effects of chance incidents of the past, i.e., his various complexes ; and then, with a continuation of the analysis there might be a danger of interfering with his healthy sentiments. As far as one can make out, such a question as that does not seem to interest the enthusiastic followers of Freud in analysis. They speak of complete analysis, as if an individual can go right through with the analysis and come out, as it were, on the other side a stronger and better man, and yet they bring forward no conclusively satisfactory reasons for this view.

As regards terms, therefore, we can regard complexes as pathological

formations analogous in structure to sentiments of the normal mind. In both cases there is a union or systematisation of cognitive and conative dispositions, and they both point forward to the general problem of freedom or self-determination of the mind, and the general problem of volition. McDougall's theory of volition in terms of the self-regarding sentiment is clearly a very important generalisation which, to a certain extent, does fit in with what can be said about disturbance of volition in pathological cases through the existence of complexes ; but when we come to deal with the mind from the point of view of ethics and metaphysics, as distinct from the merely psychological point of view, we may feel more firm in our suspicion that the explanation is a far too mechanical one.

(To be continued)

SPONTANEOUS SUBARACHNOID HÆMORRHAGE WITH RECOVERY

Remarks on the ætiology of such cases in the absence of any obvious renal or vascular disease and without any known infection or general tendency to hæmorrhages of any kind.*

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INTRODUCTION.

In recent times the use of lumbar puncture for diagnosis and treatment has revealed many cases of spontaneous diffuse subarachnoid hæmorrhage—terminating in recovery—of unknown causation in apparently otherwise healthy persons. In some of these cases recovery has doubtless been favoured by the relief of pressure on the brain and spinal cord afforded by the lumbar puncture, repeated if necessary. Reports of cases of this class are becoming more frequent in Great Britain, the Continent and America. The question of the probable ætiology of such cases is intimately allied to that of the ætiology of spontaneous cerebral or cerebellar hæmorrhage occurring in otherwise apparently healthy subjects (C. O. Hawthorne and others). By *spontaneous* we mean *non-traumatic*; and we shall not discuss hæmorrhages secondary to tumours or due to renal and vascular diseases, or known infections, or general tendency to hæmorrhages of any kind. This excludes the consideration of hæmorrhage secondary to meningitis of any sort or connected with syphilis, tuberculosis or malignant endocarditis, with or without the intermediate formation of a mycotic aneurysm, leukæmia (notably, myeloid leukæmia), purpura (various classes), and hæmophilia.

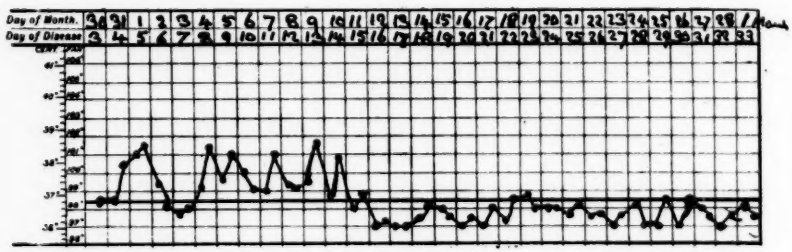
In some cases (especially fatal ones), owing to their sudden onset and severity, the symptoms may resemble those of general intracranial pressure from hæmorrhage into the ventricles. In other cases (especially after the first onset) the symptoms may be chiefly those of meningeal irritation, including cervical rigidity and Kernig's sign (C. P. Symonds and others), and owing to that and because of the usual moderate pyrexia of subarachnoid hæmorrhage, a clinical diagnosis of *meningitis* or, after a post-mortem examination, of *meningitis hæmorrhagica*, has formerly sometimes been made. In the present case and in various recorded cases (Rathery and Bonnard, Fiessinger and Janet, Otero) the lethargy and somnolence have resembled that of encephalitis lethargica. In some cases there have been localised symptoms, probably due

* Founded on a communication to the Association of Physicians, Annual Meeting, May 21, 1926. From the German Hospital, London.

to slight superficial laceration of nervous tissue; but with the cases in which the subarachnoid hæmorrhage is secondary to a definite cerebral or cerebellar hæmorrhage we are not concerned here—any more than we are with cases in which the subarachnoid hæmorrhage is due to conditions or injuries acting from outside. In one case (Simon and Michon), in a youth who recovered, it was suggested that the starting-point of the hæmorrhage was spinal instead of in the supposed usual position, that is to say, at the base of the brain. In some cases (Riddoch and Goulden, J. A. Conway) ocular symptoms (retinal, vitreous or subhyaloid hæmorrhages) have been present, and a rare complication is the occurrence of herpes (W. J. Adie).

PERSONAL CASE.

The patient, Mrs. C. L. G., age 54 years, a rather thin-looking Englishwoman, was sent to hospital on January 30, 1926, in a deeply somnolent condition, as a probable case of encephalitis lethargica. On admission the temperature was normal; pulse, 60; respiration, 24 per minute. She could easily be roused from her somnolence to answer questions, but when left undisturbed she would quickly relapse into an apparently ordinary sleep. In that respect her condition suggested encephalitis lethargica. When roused up and questioned she did not complain of any headache or other pain but only of a feeling of tiredness and sleepiness. There was very slight cervical rigidity, inasmuch as she could not bend her head forward, but there was no definite Kernig's sign. The left pupil was slightly smaller than the right, but both reacted normally to light; later on it was thought that the left pupil reacted slightly more slowly than the right, and the left palpebral fissure was often smaller than the right. There was no diplopia. No paralysis or anæsthesia was found anywhere. No disorder of the deep or superficial reflexes was detected, excepting that the superficial abdominal reflexes could not be obtained. No other nervous symptoms of any kind were present. By ophthalmoscopic examination the fundi appeared normal. No evidence of visceral disease in the thorax or abdomen was obtained on admission or later on. The brachial blood-pressure taken later on was 120 mm. Hg. (systolic) and 180 mm. Hg. (diastolic).



A lumbar puncture made on February 1 *proved the case to be one ofus barachnoid hæmorrhage.* It yielded cerebrospinal fluid (only 15 c.c. withdrawn) uniformly mixed with blood; when the blood-corpuscles were separated by centrifugalisation the clear supernatant fluid was yellow (4 by Meulengracht's scale) and gave a positive indirect Hijmans van den Bergh reaction for bilirubin. With this the patient's blood-plasma was compared; it was likewise yellow (8 by Meulengracht's scale) and gave a not very strong positive indirect Hijmans van den Bergh reaction. The condition of the cerebrospinal fluid was the same on the morning of February 2, when 15 c.c. were again withdrawn; the clear yellow fluid, from which the blood-corpuscles had been separated, gave a positive reaction for hæmoglobin as well as a positive indirect Hijmans van den Bergh reaction for bilirubin.

The *history* previous to admission was that on January 28 the patient had suddenly complained of severe pains in her head, after which she fell into the condition of somnolence in which she was admitted. Previously to this attack she had apparently enjoyed good health, excepting that for over thirty years (since her sixteenth year) she had suffered from attacks of headache—chiefly on the left side—and vomiting, lasting two or three days, and recurring about every six weeks. The only method of treatment for these migraine-like attacks, which she thought had done her any good, was to rest on her back in a quiet room and to abstain from any food or drink. Even after taking a little tea during these attacks she would sometimes vomit. She had had only one child (a girl, age 12 years, living and healthy), and no miscarriages.

In regard to the causation of the subarachnoid hæmorrhage there was no history or evidence pointing to traumatism, syphilis, tuberculosis or any infection, cardiac, vascular or renal disease, or any hæmorrhagic tendency. The patient's blood-serum and cerebrospinal fluid both gave a negative Wassermann reaction. The blood-coagulability and the bleeding-time were apparently normal. A blood-count gave: hæmoglobin, 97 per cent.; erythrocytes, 5,100,000, and white cells, 10,000, per c.mm. of blood. The differential count of the white cells gave: polymorphonuclear leucocytes, 62 per cent.; lymphocytes, 27 per cent.; monocytes (transitionals and large mononuclears), 9 per cent.; eosinophiles, 2 per cent. There was apparently no diminution of blood-platelets. The slight leucocytosis noted may have been post-hæmorrhagic.

The diagnosis of subarachnoid hæmorrhage was confirmed by the patient becoming suddenly unconscious on the afternoon of February 2, evidently owing to fresh subarachnoid hæmorrhage. This attack commenced with a spastic condition in the upper limbs and there was Cheyne-Stokes respiration for about three-quarters of an hour; the pupils were large; the pulse was unaltered. An intravenous injection of gr. 1/20 'lobelin' seemed to have a favourable effect. Anyhow, this attack passed off in about two-and-a-half hours, and the previous condition of somnolence (as on admission) returned.*

After that the condition remained unaltered for some time. We failed to obtain any cerebrospinal fluid by lumbar puncture on February 6, and no further attempts were made to obtain any, especially as the above-mentioned exacerbation of the symptoms had followed a few hours after the second lumbar puncture. For about 12 days there was moderate pyrexia (*see figure*), as is usual in cases of subarachnoid hæmorrhage. During the first two days in the hospital the pulse was only about 60 a minute, but afterwards, with the pyrexia, it became somewhat more frequent. On February 11, when the fever ceased, the patient seemed to pay more attention to what was going on near her, and made a few sensible remarks. On the following day she talked a little spontaneously and said that she did not feel sleepy. From this time she continued gradually to improve. From February 20 she could use a knife and fork with her meal and soon afterwards she was able to get out of bed to sit up a little. On March 13 she could walk about quite well and was very cheerful; there was no cervical rigidity. She told us that she could not remember anything of her illness except that, when recovering, she felt very sleepy. The eyes had occasionally been ophthalmoscopically examined for anything abnormal, but always with negative result. She left the hospital on April 3.

On May 19 we had an opportunity of seeing her again. She looked well, but her husband thought there was some diminution in her energy and memory since the illness. As before, we could obtain no superficial abdominal reflexes; there was also slight right lower facial paresis. Since her illness she had had none of her habitually recurrent migraine-like attacks.

We should like to thank Dr. F. E. Loewy, one of the resident medical officers at the German Hospital, for kind assistance in the examination of the case.

* We may, however, remark that a favourable action has been claimed for lobelin in cases of respiratory disturbance due to increased intracranial pressure.

SUMMARY OF THE CASE.

The patient was a married English woman, age 54 years, who was sent into the hospital as a case of suspected lethargic encephalitis. Examination of the cerebrospinal fluid, however, showed it to be one of subarachnoid hæmorrhage. This diagnosis was further confirmed six days after the commencement of the illness by the patient suddenly becoming temporarily comatose, evidently owing to further hæmorrhage. The usual moderate pyrexia, as noted in other cases, was present.

The Wassermann reaction was negative in her blood-serum and cerebrospinal fluid, and there was no evidence of any tuberculosis. Previously to the illness she had been apparently healthy, excepting that, since her sixteenth year, she had suffered from attacks of headache (chiefly left-sided) and vomiting, lasting two or three days, and recurring about every six weeks. She gradually recovered from the subarachnoid hæmorrhage without there being any *definite* localising symptoms, but very slight right lower facial paresis was observed after her recovery, and her husband noticed some impairment of her memory and energy. Since her illness (about three months) she has had none of her habitually recurrent migraine-like attacks.

DISCUSSION.

In regard to the diagnostic importance of the examination of the cerebrospinal fluid in these cases (*see* Froin, C. P. Symonds, and others) we will say nothing, excepting that, after separation of the erythrocytes, the yellow colouration (xanthochromia) and the positive Hijmans van den Bergh indirect reaction for bilirubin should be compared with those of the patient's blood-plasma. If the patient happened to be jaundiced or, though not actually jaundiced, for some reason to have bilirubin in the blood-plasma somewhat in excess of the normal limit, one could understand that the cerebrospinal fluid freshly mixed with blood either at the time of the lumbar puncture (owing to a minute vessel being wounded by the puncture) or just previously, would give a positive Hijmans van den Bergh reaction for bilirubin, but of *very much less degree* than that given by the blood-plasma itself. On the other hand, in cases of the kind (as is well recognised) the uniform admixture of blood—the same in every specimen withdrawn—proves that the blood was mixed with the cerebrospinal fluid before the lumbar puncture was made, and a sufficiently marked positive Hijmans van den Bergh (indirect) reaction proves that before the lumbar puncture was made some of the hæmoglobin had been transformed into blood-bilirubin. This shows that subarachnoid hæmorrhage had occurred, or at all events that there had been leakage of blood into the subarachnoid space, *some time before* the lumbar puncture was made.

In discussing the *possible causes of the hæmorrhage* in cases like the present one we will shortly refer to the most probable explanations of non-traumatic hæmorrhage into the brain or meninges—" spontaneous " cerebral, cerebellar and leptomeningeal or subarachnoid hæmorrhage—in otherwise apparently

healthy (often youthful) individuals, that is to say, in the absence of any tumour or any obvious renal or vascular disease and without any known infection or general tendency to hæmorrhage (hæmophilia, purpura, leukæmia).

One of the most probable explanations is the rupture of a small aneurysm —usually at the base of the brain near the circle of Willis—such as has been described by E. G. Fearnsides, H. M. Turnbull, C. P. Symonds and others, and has been occasionally observed in otherwise healthy young subjects. These aneurysms—more than one of which may even be present in the same person—are presumably dependent on some local developmental defect in the vessel-wall, so that they have been termed *congenital aneurysms* by some writers. According to Fearnsides, intracranial aneurysms may occasionally be due to an inherent, inborn, weakness. In his paper of 1916 (p. 281) he writes : " In the non-inflammatory group a congenital weakness of the arterial wall at junctional points (points of junction and bifurcation) is an important factor in their formation." Turnbull has suggested that a breach in the media—due to an inborn defect—may be the cause of the trouble. A. Duguid's case of ruptured aneurysm of the basilar artery in a youth, age 17 years, may be instanced in evidence that aneurysms may be formed by a pouching of a fibrosed intima through a deficient or severed media. In this connection Dr. Weber suggests that certain cases of non-syphilitic aneurysms, apparently of non-inflammatory origin, and occurring in hypoplastic aortas, might be remembered. He (Dr. Weber) would also point out that aneurysms analogous to the so-called ' congenital aneurysms ' of the brain ought to be carefully searched for in other organs, to account for (supposed inexplicable) hæmorrhages, for instance, spontaneous hæmatomata in the spleen (one probable cause of splenic cysts).

Another possibility is that a defective blood-vessel (artery) sometimes ruptures without there being any aneurysm. In many fatal cases of spontaneous hæmorrhage into the brain or meninges in spite of search at the necropsy no aneurysm of any kind has been found. It is certain that in some cases very careful searching at the necropsy is required to detect the presence of a ruptured aneurysm and even careful pathologists have been known to have overlooked an aneurysm that was subsequently detected. *Nevertheless, rupture of a defective artery without the preliminary formation of an aneurysm must be admitted as a possible alternative explanation.* In this connection we would refer to some work of O. P. Beuterwall in regard to slighter forms of disease in the cerebral arteries. His work throws light on the occasional occurrence of spontaneous hæmorrhage in the brain or meninges of young and apparently healthy individuals apart from syphilis and local active inflammation. He has recorded his careful examination of the basilar artery in 87 post-mortem examinations ; in seven of these he found transverse ' rents ' in the internal elastic lamina which during life had undergone connective-tissue repair. Similar conditions would probably have been found in other arteries of the brain and meninges, had they been examined in the same careful way. As these ' rents ' tended to be multiple, the internal elastic lamina

was probably peculiarly 'fragile' in such cases. The ages in the seven positive cases varied between 38 and 70 years, and, though in all of them there were arterial atheromatous changes present, the 'rents' had occurred at almost healthy or only slightly diseased sites. The same causes (perhaps blood-pressure strain, slight local disease and the unexplained condition of 'fragility' in question) which produced the 'rents' in the internal elastic lamina might probably, in some exceptional cases, give rise to complete rupture and hæmorrhage or to the formation of an aneurysm.

S. Goldflam has suggested that the cause of so-called 'spontaneous' subarachnoid hæmorrhage may in some cases be a *functional vasomotor disturbance* analogous to what is supposed to occur in *migraine* and Raynaud's symptom-complex. According to the theory in question capillary oozing may take place during the stage of active hyperæmia, which follows that of vasoconstriction. A similar theory has been suggested to account for certain attacks of intra-ocular hæmorrhage, and in this connection one of us (F. P. W.) remembers the case of a man, age 33 years, subject to attacks of migraine and transient blindness, who had an intra-ocular hæmorrhage (into the vitreous of the right eye), which, it was suggested, might have been due to extreme hyperæmia during a period of vascular relaxation following preliminary migrainous angiospasm. In another subject of recurrent migraine-like attacks (a woman, age 52 years) detachment of the retina had occurred in the right eye. Cases of intra-ocular hæmorrhage in women supposed to correspond to "vicarious (supplementary) menstruation" are probably due to extreme vascular "flushing."

In this connection we should also allude to the theory that in cases of spontaneous subarachnoid hæmorrhage the hæmorrhage may be due to a *diffused oozing*, analogous to the hæmorrhage in some cases of gastrostaxis and epistaxis and in some rare cases of hæmaturia. K. Meylahn even goes so far as to suggest that the hæmorrhage is due to *diapedesis of blood-cells* owing to functional vasomotor disturbance.

It must be admitted that in the present case (Mrs. C. L. G.) a history of recurrent migraine-like attacks constituted the most prominent feature of the previous medical history and that migraine-like symptoms have been attributed to an intracranial aneursym in certain cases in which the presence of such an aneurysm was proved. Nevertheless, though rupture of an aneurysm is perhaps the most likely explanation of the subarachnoid hæmorrhage in Mrs. C. L. G., we cannot believe that, in the absence of any localising symptoms, any aneurysm of the kind could have been the cause of the severe recurrent migraine-like attacks to which the patient (otherwise apparently healthy) was subject for over thirty years before the occurrence of the subarachnoid hæmorrhage. That there may be some indirect ætiological connection between recurrent migraine-like attacks and ultimate subarachnoid hæmorrhage seems probable. Dr. Weber has heard of the case of a middle-aged lady who had been subject to recurrent migraine-like attacks with sickness and who died of

what was probably acute subarachnoid hæmorrhage. (The term "lepto-meningeal" was apparently used but we only know that a post-mortem examination was made abroad.)

Spontaneous hæmorrhage in the brain or meninges might conceivably be occasionally connected with congenital *angiomatous or telangiectatic nævi* or so-called 'congenital varicose veins' of the meninges; for, indeed, hæmorrhage is notoriously more liable to occur in connection with abnormal vascular structures than in connection with normal tissues. Such cases must, however, be of extreme rarity (cf. Anders and E. Herman).

Finally, we must still allude to the possible though improbable occurrence in an apparently healthy individual of local inflammation of an artery leading to 'spontaneous' hæmorrhage in the brain or meninges. Though we have never met with such a case, Parkes Weber has recorded *local arteritis* of the right middle cerebral artery in a previously apparently healthy man, age 43 years, which might conceivably have given rise to hæmorrhage, but which actually gave rise to fatal thrombosis.

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AN ANALYTICAL FRAGMENT.

By T. C. GOOD, Littlemore, Oxford.

The following is a fragment of analysis in the case of a woman, age 47. She was married and had one son, and there was a history of two miscarriages. Intelligent and well educated, she was the youngest of a large family, and had been 'spoiled' by her father, while she was hostile to her mother. She was also very religious, belonging to the 'high church' section of the Church of England, and had thought of adopting the Roman Catholic persuasion.

The patient's general attitude to the whole analysis had been one of marked resistance, with a tendency to a negative transference; for example, all sittings started with an attempt at argument and usually with the statement, when argument was refused, "Well, what do you want me to say?" The dreams at first were long and profuse and dealt principally with childish repressions, mostly of an erotic type. For the last three interviews dreams had been difficult to elicit and were only fragmentary. On the day of the analysis with which this fragment deals the patient started with the statement that she had had no dreams. She was irritable when pressed for any associations and attempted to argue. She said she was better and wanted an explanation of why she was better. On being again asked for a dream, she stated that she had so many and that they were quite different to what they used to be. She added that she could not remember the dreams. On being asked if she could concentrate and remember anything at all, she said "they only deal with my everyday life." This attitude of the patient was obviously a resistance, and an attempt was made to break it by the statement on my part that I thought if she would cease to criticize and concentrate instead on the idea of dreams she would be perhaps able to recount some fragment.

After a short interval the patient remarked, "I remember a little bit; it's nothing; it has nothing to do with what we are analysing." It was here pointed out by me that no analysis at the moment was going on, as I had nothing to work upon unless she gave her associations. After a further short resistance the patient laughed, blushed, and said "I dreamt ——, my sister, was praying."

Here there was a further resistance, but on my pressing for information as to what she was praying for the patient added, "she was praying, 'pray God make me a good girl.'"

Associations were asked for on the words "pray God make me a good girl."

PATIENT'S ASSOCIATIONS.

Pray God make me a good girl. " It's a prayer all children use. I expect you have used it yourself—it's silly in the dream my sister's saying it." Here the patient was reminded of the wish-fulfilment element in dreams, with which she was already familiar, upon which she continued, " You are trying to make me better."

Pray. " That means to ask."

God. " Good " (my name).

Make me a good girl. " You often tell me I am childish. I think I am better." Pressed for more associations the patient said, " I am thinking of lots of things. I don't see why I should tell you. Why should I remember things I have forgotten ? "

At this point no more associations could be obtained. The patient attempted to argue and wished to discuss her son's conduct. Associations were then tried for on ' sister.' After some pressing she gave the following.

" Sister, that is the sister I always liked and yet we always quarrelled. She's married now and doing well." I asked at this point in what way I was like this sister. The immediate answer was, " you are not like her a bit." On my pressing still further for an answer to the question " is there anything in me that reminds you of your sister ? " the patient remarked " I always argued with her."

It had always been one of the great difficulties in analysing this case that argument was attempted on the slightest provocation, and I therefore concluded that the transference was on this occasion hiding in the symbol of the sister. I could get no further association at this point on the sister, so I attempted it by dividing the word into its syllables : ' sis ' – ' ter.' I got no reply from the patient except that " God was good," referring to the dream prayer itself. As my own name is Good, it appears obvious that I stand for God in the patient's unconscious, and that she is asking me to make her better. I asked her at this point what the word ' pray ' meant to her. She said ' to ask,' then without any further interpretation from me or any more pressing she stated, " I suppose the dream means I wish you would make me better." I again pointed out that ' sister ' seemed to mean something, and pressed for further associations. As none were forthcoming I asked the patient to associate on ' sister ' and especially on the letter ' S,' which also I asked her to write. She was silent and wrote ' S ' thus : **S** Although associations had stopped, I noticed that the patient still held the pen and was enlarging or drawing so as to increase the thickness of the ' S,' thus : **S** I asked her what she was doing ; she said, " thinking and making the ' S ' thicker." I now came to the conclusion that ' sister ' must be a very condensed symbol and contained the key to the latent content. I proceeded to ask her if the ' S ' she had drawn was not like a snake. She admitted it was. I asked her if this helped her, suggesting that a snake was a phallic symbol and also in folk lore and mythology a symbol of wisdom, and again pressed for associations. The patient then

stated, " ' Sis ' is rather like the noise a snake makes. I rather like snakes. My brother used to keep snakes and when he went away I used to look after them. I got quite to like them." Associations here stopped, patient fidgetted and said " Ought I to tell you everything ? " I pointed out that if the thoughts that came into her mind were not stated the analysis could not proceed. She then gave a long account of an episode during the war, whilst her husband was at the front, in which she had misconducted herself with another man. She said she could not think why she had done it. She had always feared her husband finding out. Her sister (the one in the dream) also liked the same man, but he did not like the sister. The patient and her sister had a quarrel over the man. Then the patient said with emotion, "Why is it that I always have attracted men ? I don't like it, but I can't help it." Associations were again sought, but the only one obtained was that she was very attracted as a child by her eldest brother. He was much older then herself, but she loved him because he was so handsome. Further associations followed ; " I always like handsome men, they attract me." The sitting was over at this point.

DISCUSSION

This fragment appears to illustrate Freud's theories of dreams and the unconscious mechanism of identification with the analyst. In this dream ' God '—good (my name), ' good ' associated with God, and also a play on words. " Pray *God* make me a *good* girl." Sister—an example of condensation displacement.

Suggestions in regard to the Latent Content of the Dream.—The *drawing* of the letter ' S ' brings out clearly the snake symbolism in the patient's unconscious. There was here a very strong double repressive force, the unconscious emotional repression of the painful episode, and a conscious shrinking from discussion of matters relating to sex. Apparently the effort required to overcome this resistance by giving *verbal* associations was too great, until the drawing had, as it were, opened up the subject.

Again, it is interesting to note that the drawing produced immediately a symbol associated with very deep layers of the unconscious, the idea of the snake as a phallic symbol being a primitive and fundamental one. While the drawing of the ' S ' was at my suggestion, the movement of the pen in enlarging and thickening it was automatic and unconscious, and synchronised exactly with a marked lessening of the repression. It appears possible that repression may be so great that deep layers of unconscious mental material can only be reached when the patient performs the movement corresponding to the idea. Primitive man first tried to communicate his own ideas to others by drawing pictures symbolising to others his thoughts. Alphabetical letters are but highly symbolised drawings. Drawings succeeded or were coexistent with sign language. Drawing or writing, therefore, is of use in analysing patients, and I have frequently found that the resistance is overcome only by getting the patient to draw or write either the word or letter about which he or she is

thinking. In the case from which this fragment is taken nothing could be analysed of the latent content till the resistance of the repressive force was broken down, apparently by the act of drawing the figure. One may surmise that it required a deep regression individually and also a regression to symbolic thinking of such an early primitive nature that thought and physical movement had to proceed together.

This primitive thought process is to be seen in the drawing and writings of deeply regressed cases of dementia praecox and among the feebleminded. Patients under hypnosis also exhibited the same tendency, e.g., patients in whom hypnosis has been used occasionally become so deeply relaxed and unconscious that ' rapport ' is lost. No command or other expedient will rouse them except direct violence. They will simply sleep for varying periods, waking naturally if left alone. During the war hypnosis was a means of dealing with amnesias, and it was during this period that I personally was able to observe this phenomenon in a few cases.

One was the case of a sergeant who was so easily hypnotised that at the simple suggestion of sleep he became so deeply unconscious to his particular world that all ' rapport ' was lost. No command seemed to make any impression on him. If left to himself he would sleep for about three or four hours, waking perfectly naturally. This phenomenon occurred on several occasions. On failure to get any ' rapport,' the step taken was to try various movements of the limbs. These were tried on the supposition that the hypnosis was a resistance on the part of the patient to some painful dissociation returning to consciousness. Various stimuli were tried without waking him, such as touching him with a lighted cigarette, or pricking of the skin. All his limbs were then moved in various directions. When the right wrist was grasped the patient suddenly regained consciousness, and appeared to be about to attack the operator. He was assured that all was well, and that he was only probably remembering something. He was then associated on what that particular grip of the wrist reminded him of, and after considerable resistance and with a good deal of emotion, he stated that it reminded him of a time at the second battle of Ypres, when he was held down by one of the Prussian Guard while another tried to cut his throat. He maintained that he had completely forgotten this episode and showed a good deal of emotion in recounting it. He was then re-hypnotised, and now was found to react in the normal manner, a good many other long-lost memories being regained.

The second case was that of a gunner who yielded easily to hypnosis, but, again, lost ' rapport ' with the operator and could not be roused by the usual means. In this case it was noticed that while the man was hypnotised he made a movement of the right arm across the body, bringing it sharply back at fairly regular intervals. This movement, it was considered, might be the clue and also show the path to the dissociation, and he was questioned under hypnosis as to the reason of it. This question was answered by the reply, " the breech of the gun," and ' rapport' was

established from that moment. It was then found by further questioning while under hypnosis that he had been blown up by a shell at the moment when he was opening the breech of the gun. The movement, of course, represented habitual action, which he had performed and was performing at the time when the psychological repression broke down.

Both these cases appear to illustrate the point that repression may be of such a depth that the autonomic system may be involved. In other words, till the movement which occurred is reproduced and brought into consciousness the dissociation remains buried and inaccessible to consciousness, because it is at such a deep level regressively as to be only accessible to what one might call the symbolisation of movement.

Biologically, man in the process of evolution first symbolised his wishes and fears by coordinated muscular movement, and it would appear, therefore, that in a mental pathological condition the regression may be so deep that it reaches this very low mental level, and that till the movement which has been performed at the time of great emotional repression is able to be recalled to consciousness, this association or dissociation connected with movement cannot be regained.

This theory, needless to say, is at present purely hypothetical, and needs the support of numerous cases before it can be accepted as a fact, but if it were even provisionally tenable it would give a logical explanation of some movements seen in cases of dementia praecox and other forms of psychosis.

As an instance of this, a man suffering from acute confusion due to marked toxic degeneration of the cerebral cells (the autopsy showed complete disintegration of their chromatin and nuclei), who previously to his illness had been working on some problems connected with ' zero ' and also on wireless telegraphic phenomena, during his delirium babbled incoherently words connected with these sciences, and by his movements continually illustrated the problems that were occupying him before his illness. That is to say, he continually brought the forefinger and thumb of each hand together, thus forming a circle of the thumb and forefinger, and then brought the two forefingers and thumbs in front of him, forming thus the form of ' zero ' (the two ' 0's '). This movement was a fairly constant one throughout his period of confusion, which lasted for about 14 days, and in which he was apparently quite inaccessible to any influence, or to his fellows.

CONCLUSIONS

To sum up, this fragment of analysis would appear to emphasise the following facts :—

(*a*) In psychoanalytic technique the movements made by the patient during analysis are of great importance. This ,of course, is recognised ; but, further, where the resistance is extreme drawings should be resorted to, as movement was one of man's earliest ways of expressing thought-processes to his fellows, and in psychoneuroses and psychoses regression biologically to

these early thought-processes may be necessary to regain the patient from his state of delirium.

(*b*) If (*a*) is a correct hypothesis, it tends to prove that all pathological mental states are a regression to earlier forms of mental feeling, and therefore have a biological significance.

(*c*) It is suggested that further investigation of the psychology of the feebleminded will strengthen this hypothesis, as here we have an admitted failure of intellect and control of emotion. In the feebleminded it can sometimes be observed that the expression of wishes is often confined entirely to gestures, and in all cases there is a manifestation of feeble powers of expressing or understanding wants through the medium of speech. Moreover, such few words as are used show a great paucity in associative value.

Editorial.

PERSPECTIVE IN PSYCHIATRY.

PSYCHIATRY has the unenviable reputation of containing within its borders an inordinate number of conflicting schools of thought, and of possessing fewer assured and agreed theories than any other branch of medicine. The divergencies of view are not concerned merely with superficial variations in method, but appear to involve fundamental differences in attitude and outlook, between which it is not easy to find any compromise. The most obvious and the widest of the divergencies is that which lies between the physiogenic and psychogenic schools, but each of these major groups includes numerous sections whose conceptions and methods of attack are radically different one from another. Within the physiogenic school are those who are endeavouring to solve the problems of mental disorder along anatomico-physiological, bacteriological, biochemical and endocrinological lines of research. Within the psychogenic school diversity would seem to be extreme. Suggestionists, persuasionists, and analysts put forward theories which appear to follow altogether independent roads. Even amongst the analysts the differences are so radical that their views range from the almost mechanistic conceptions of Freud to the doctrines of Jung, who deliberately passes beyond the confines of science and joins hands with philosophy and ethics.

These conflicts of opinion, outlook, and method are to some extent peculiar to psychiatry, but largely they are a reflection of the corresponding conflicts which exist in psychology. Here again we have on the one hand the mechanistic conceptions of the behaviourists, and on the other the purposive psychology of McDougall. The aim of the former is altogether to exclude the subjective aspect of experience from the material of scientific research, and to build up conceptions on a basis solely of objective facts. It may be said of this school, as Höffding said of its forerunners long before the birth of modern behaviourism, that their endeavour is to abolish psychology in order to make it into a science. For McDougall, at the opposite pole, con-

sciousness and purpose are obvious factors of experience which must necessarily be taken into account and given their full valuation if psychology is to bear any relation to reality.

The fundamental divergence between the physiogenic and psychogenic approach to the problems of mental disorder is probably dependent upon differences which may almost be said to be temperamental and constitutional in the corresponding investigators, and which make it difficult for either group to acquire a sympathetic understanding of the other's views and methods. For the one an attack upon the neuroses and psychoses by the objective weapons of anatomy, physiology and chemistry possesses advantages which are obviously overwhelming. The phenomena can thus be brought into line with the other phenomena of medicine, the investigation can be carried out by methods capable of exact scientific accuracy and verification, and the evidence of a strict causal relationship between organic processes and psychical phenomena furnished by such psychoses as senile dementia and general paralysis produces a confident anticipation that processes of the same order will ultimately be found to provide a complete explanation of all mental disease.

On the other hand the psychologically minded investigators hold that the phenomena of mental disease are of an order which cannot be wholly forced into the framework of mechanistic science without doing violence to their essential characters, they insist that these essential characters can only be satisfactorily embraced by psychological conceptions, and they point to the remarkable success which these conceptions have achieved in explaining the problems of the psychoneuroses, problems which have certainly not hitherto yielded to any attack made upon them by the physiogenic schools.

There can be little doubt that each of these extreme views, in so far as it arrogates to itself the exclusive possession of the only route to knowledge, is putting forward a claim which cannot be justified. Nor can the compromise whereby certain disorders are regarded as psychogenic in their origin, and certain other disorders as physiogenic, provide a finally satisfactory solution. In view of the obvious mental effects in toxic conditions like acute alcoholism, in endocrine deficiencies like cretinism, and in organic brain diseases, particularly the subtle characterological changes capable of being produced by encephalitis lethargica, he would be a bold man who would dare to set a limit to the regions accessible to anatomical, physiological and chemical research. Nevertheless, it must be re-

membered that a naive belief in the absolute validity of the conceptions of mechanistic science and in their applicability to the whole sphere of our experience is no longer compatible with the trend of modern thought. Mechanistic science began as a development of seventeenth century physics, and proved supremely successful in the later growth of that department of knowledge. But biology and psychology have never managed to fit comfortably into its scheme, and latterly physicists themselves have been busily engaged in tumbling over many of their old idols. It is indeed an irony of fate that a determined attempt to force psychology and psychiatry wholly into the domain of mechanistic science should be taking place at a time when the original founders of the latter are struggling uneasily with their fundamental conceptions, and seeking to remodel them.

There are considerable areas of human experience to which the conceptions of materialistic mechanism are inapplicable, or at any rate only applicable by a degree of abstraction which abstracts from the phenomena in question their essential characters. Hence science must either abandon all attempt to deal adequately with these areas, or must be prepared to utilise some other approach than the mechanistic. One such other approach lies along the psychological road, and there is every justification for pushing research along that way so far as it promises to add to our knowledge.

It would seem, therefore, that attack upon the problems of mental disorder cannot be constrained within too narrow a front, and that the best hope of progress lies in a simultaneous advance along every likely avenue. The physiogenic and psychogenic schools must each be allowed to proceed with its own weapons, and advance will not be retarded by the acquirement of a sense of perspective which will carry with it toleration and sympathetic insight for the labours of others.

A similar plea for perspective and toleration is even more applicable to the divergencies existing within the psychogenic school, because the divergencies here are necessarily less fundamental. Nobody suggests that the different lines of approach followed by the anatomical, physiological and chemical investigators are mutually destructive, or that one of them must be right and the others wrong. It is at least possible that the variations within the psychogenic schools are of the same order, and represent different but not incompatible attempts at the solution of the problems. To some extent this is certainly the actual state of affairs, and it is not difficult to show

that the theories of analysts, suggestionists, and persuasionists are attacks at different levels rather than essentially conflicting interpretations.

No doubt all these divergent approaches indicate an imperfect knowledge, and their unification in a single system of universally valid conceptions would be very desirable. But the achievement of such a unification is at present only a remote possibility even in sciences far more advanced than psychiatry, and its advent will not be hastened by the pretence that it has already been attained.

Abstracts.

Neurology

NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[1] **Function of neurological tissue.**—E. A. Franklin, *Jour. Nerv. Ment. Dis.*, 1924, lx, 5.

The author collects certain data from the fields of embryology, anatomy, physiology and pathology, in relation to the neurological tissue. From those he deduces the theory that neurological cells are nutritive reservoirs for the central nervous system and that they elaborate a highly specialised secretion necessary to neuronic tissue. They act as intermediaries between the blood lymph supply on the one hand and the nerve cells on the other.

They receive arterial blood plasma under positive pressure by means of 'suction feet' which transmit raw material to the cell protoplasm, where an internal secretion is elaborated and this is imparted through its numerous branching fibres to the nerve cells as required. The waste products of the neurones are removed via a system of fine lymph canaliculi surrounding these fibres and returned under negative pressure to the perivascular lymph spaces and veins into the general circulation.

R. G. Gordon.

[2] **Nerve endings in adipose tissue.**—H. J. Wilkinson and A. N. Burkitt. *Med. Journ. Australia*, 1926, xiii, 179.

Fine nerve endings from non-medullated nerve fibres have been traced to the surface of fat cells in the synovial membrane and orbit of the rabbit. Tissues were prepared by the ordinary injection method of *intra vitam* staining with methylene blue, and were fixed in a solution of ammonium picrate. Attempts were made to discover similar nerve endings in fatty tissue in other regions without success. A suggestion is made that these fibres may have some regulatory influence upon the activity of the fat cells, and experimental work is being continued with a view to determine whether sympathetic nerves have any direct relation to fat metabolism.

Lewis Yealland.

[3] **Human adult and embryo anterior horn cells.**— W. M. KRAUS and A. WEIL. *Arch. of Neurol. and Psychiat.*, 1926, xv, 687.

THE anterior horn cells of the spinal cord of a four-month embryo and the adult cells resemble one another in the following respects: the cephalocaudal diameters of the cell bodies are the longest and the corresponding dendrites the largest. The proportions of the two transverse diameters to each other are almost the same. At both stages of ontogenesis, the order of size of the cells in the three different parts of the cord is lumbar, cervical, thoracic.

During ontogenesis the cephalocaudal axis elongates from two to three times more than the dorsoventral or dextrosinistral diameters and the direction of the longest diameter is parallel to the long axis of the cord.

In the conception of the theory of neurobiotaxis, these findings appear to prove that: (*a*) during the fourth embryonic month, strong intersegmental stimuli, both cranial and caudal to the cell body, are responsible for its form and for the development of the longitudinal dendrites. These stimuli gain in strength during ontogenesis and finally produce the fusiform adult anterior horn cells. (*b*) Besides these stimuli other secondary stimuli are at work within the segments as early as the fourth month, but they do not increase in the same proportion as the intersegmental stimuli. (*c*) The stimuli regulating the growth of the axis cylinder direct it perpendicularly to the direction of the longest or cephalocaudal diameter. (*d*) The afferents to cells determine their form, just as, according to the theory of neurobiotaxis of Kappers, afferents to nuclei determine their position.

R. M. S.

[4] **Anatomical investigations on the central acoustic paths in man** (Anatomische Untersuchungen über die zentralen akustischen Bahnen beim Menschen auf Grund des Studiums sekundärer Degenerationen).—1. NAGINO. *Schweiz. Arch. f. Neurol. u. Psychiat.*, 1926, xvii, 229.

THE author bases his conclusions on the examination of some 14 cases in which the central tracts for the sense of hearing were involved by one or other variety of nervous disease. The following points are worthy of mention.

1. The tuberculum acusticum and the ventral acoustic ganglion (accessory auditory nucleus) are important transmitting stations on the auditory tract.

2. The axones from the former ganglion (striae acusticae) are collected in the white matter of the superior olive of the same side and form the mesial division of the lateral fillet, also of the same side.

3. The corpus trapezoides contains the axones from the latter ganglion, in addition to fibres not concerned with hearing.

4. The lateral fillet has three divisions: (*a*) the mesial section (striae acusticae) passes through the posterior corpus quadrigeminum, forming the

major portion of the posterior brachium, to end in the corpus geniculatum internum of the same side; (*b*) the middle section consists of fibres mainly from the superior olive, and ends for the greater part in the homolateral posterior corpus quadrigeminum; (*c*) the lateral division (parieto-pontine tract) passes centralwards through the homolateral posterior corpus quadrigeminum and has nothing to do with hearing.

5. There is little connection between the posterior corpora quadrigemina and the internal geniculate body.

6. The internal geniculate body has a close connection with the gyri of Heschl and the first temporal gyrus, the former being connected with the dorsal nucleus of the geniculate and the latter with the ventral nucleus. The geniculate is also connected with the supramarginal and angular gyri, and with the second and third temporal convolutions.

7. There are two main tracts in the central acoustic path: (*a*) by the tuberculum acusticum, striae acusticae, superior olive, mesial part of the lateral fillet, posterior brachium, internal geniculate body (almost entirely homolateral), to the cortical auditory centre; (*b*) by the ventral acoustic ganglion, corpus trapezoides, middle part of the lateral fillet, posterior corpus quadrigeminum (also almost entirely homolateral); its cortical end-station is uncertain, and hence its connection with hearing is doubtful.

S. A. K. W.

[5] **Researches on the connections of the corpus striatum and lenticular nucleus with the rest of the brain** (Experimentell- und pathologisch-anatomische, sowie entwicklungsgeschichtliche Untersuchungen über die Beziehungen des Corpus striatum und des Linsenkernes zu den übrigen Hirnteilen).—C. v. Monakow. *Schweiz. Arch. f. Neurol. u. Psychiat.*, 1925, xvi, 225.

The putamen and the caudate on the one hand, and the globus pallidus on the other, are different both histologically and in their connections. The former have no efferent tracts leading to the cortex. The gray matter of these two ganglia is an " Endmassiv " in connection mainly with mesencephalic structures and in this respect contrasts with the nuclei of the optic thalamus, whose connections are mainly cerebral. The globus pallidus, according to the author, furnishes certain fibres to the frontal and temporal lobes, but it also is chiefly related to lower structures (corpus Luysii, substantia nigra, etc.). The globus pallidus myelinates early, at the fifth or sixth foetal month, whereas myelination of the putamen-caudate is later, following more closely that of the cerebral cortex.

The various involuntary movements described in association with lesions of the striatal system " ought not to be regarded solely as a sequel to loss of nervous structures, but are to a greater extent the result of tissue changes following on secretory disorder (alteration of the cerebrospinal fluid, of the choroid plexuses, of the ventricular walls)." S. A. K. W.

[6] **On the basal ganglia.**—G. VERCELLINI. *Jour. Nerv. Ment. Dis.*, 1924, lx, 449.

THIS is a fairly comprehensive study of recent literature on the function of the basal ganglia, from which the author draws the following conclusions :—

(1) The function of 'tonus' is a purely vegetative function under the control of part of the corpus striatum. Its normal function gives the required plasticity to contraction of muscles and its partial or total lack of control is exhibited in degrees from the impossibility of complete relaxation to tremor and rigidity.

(2) The other part of the corpus striatum and lower centres connected with it (in addition to the general tonic function) must control automatic or in any other way stereotyped movements, as this system represents the highest motor centre in those low forms of life where there is no cortical function. It is an instance of loss of independence on the part of a centre which otherwise sticks to its functional characteristics. The human corpus striatum may be compared to a horse which has found its rider. The horseman has the leadership, but the motions are the horse's motions and not those of the rider.

(3) The thalamus is exclusively a sense organ, and through its three connections (with (1) cortex, (2) corpus striatum, (3) subthalamus) are obtained, in line of motor reaction respectively, voluntary motions, tonus, automatic motions, and 'vegetative proper' motor phenomena.

(4) The true place of localizations is the spinal cord as well as the medulla, while the superior centres do not act as real motor or sense centres, but purely as fields of association, with the result of either release or inhibition of lower centres.

(5) Through the vegetative function of the basal ganglia the action of the endocrine glands on the nervous system can be readily understood.

R. G. GORDON.

[7] **The relation of the cerebellum to the static system and its rôle in posture synergy.**——J. RAMSAY HUNT. *Jour. Nerv. Ment. Dis.*, 1924, lx, 337.

THE author summarises his theory of the dual modality of motor function and lays stress on the function of the cerebellum as the ganglion of the static or postural system. On this theory he gives an explanation of commonly observed cerebellar symptoms as a disharmony between motor and static activity in the action of muscles. R. G. GORDON.

NEUROPATHOLOGY.

[8] **Fixation of the cells of the cerebrospinal fluid with iodine vapour.**—R. S. CUNNINGHAM and L. S. KUBIE, *Arch. of Neurol. and Psychiat.*, 1926, xv, 761.

THE authors describe a method of fixation of the cells of the cerebrospinal

fluid which in their hands has given excellent results. A strip of thick plate-glass is placed in a petri dish, and a few crystals of iodine are scattered over the bottom of the dish. Very gentle warming soon fills the dish with purple fumes. The slide or cover-slip, with a drop of fluid on it, is then placed in the dish and rested on the strip of plate-glass, and the cover replaced. Within a few moments the drop of fluid turns a light yellow brown, the cells becoming well fixed almost at once, long before the drop as a whole has dried. The drop is kept in the iodine chamber until dry, in order to fix the cells firmly to the slide or cover-slip. At this stage the preparation looks very unpromising. It is a dirty purple, with minute crystals of iodine sublimated on it, and a film of coagulated proteins overlying all. The iodine can be completely removed, however, by washing the preparation for a few moments in a fresh, concentrated solution of potassium iodide. It is important to do this thoroughly, as the presence of residual iodine affects the staining; but one or two changes are always adequate. The potassium iodide is rinsed off with distilled water, and the preparation is then ready for staining. Pyronin methyl green or Mayer's carmalum is recommended.

R. M. S.

[9] **The correction of colloidal gold solutions as applied to the Lange reaction.**—N. Novick, *Arch. of Neurol. and Psychiat.*, 1926, xv, 471.

The author refers to the difficulties often encountered in the preparation of a proper colloidal gold solution. To be of any value, a solution must be absolutely neutral, and the usual method of correcting a slightly acid or alkaline gold sol. is not very satisfactory, for when alizarin red is used as an indicator the end point is not easily determined. Novick has obtained satisfactory results by using in titration one per cent. sodium chloride solution to the extent of 1.7 c.c. as an indicator. This salt is an electrolyte and a precipitant of colloidal solutions, and serves as an accurate and highly satisfactory indicator of the reaction state of a prepared colloidal gold solution.

R. M. S.

[10] **Cisternal puncture** (Uber die Zisternenpunktion).—Blum. *Fortschr. d. Med.*, 1926, xliv, 147.

Historical.—Nonne states that Quincke discussed suboccipital puncture but considered it too dangerous. Obregia recommended it; he called it 'Rachicéntese sous-occipitale' and considered it suitable for obtaining fluid from the seat of disease in cases of infections of the brain and meninges. Eden practised it several times before 1918 in cases of meningitis and tetanus. Its use for diagnostic purposes was introduced by Wegeforth, Ayer and Essick in 1919. Eskuchen, Nonne and Sicard in Europe have been largely responsible for its introduction.

Cistern puncture was preceded by the surgical method of exposing the cerebello-medullary cisterna to relieve pressure in cases of meningitis and hydrocephalus.

PRACTICAL.—The occipito-atlantal ligament is usually pierced at a depth of three to five centimetres and the depth of the cisterna itself in adults is from one-and-a-half to two centimetres.

Several techniques are described, differing in the landmarks selected. The author prefers that of Eskuchen, in which the needle is entered at a point about midway between the spine of the axis and the level at which the ligamentum nuchae is felt to leave the occipital bone. It is directed towards the point at which the occipital bone is gauged to end. If the bone is encountered with the point of the needle one feels one's way carefully along it to the foramen. The foraminal edge of the occipital bone is the point for orientation.

Cisternal puncture should be practised first on the cadaver, although the cadaver differs from the living in that the tissue resistance is greater and the piercing of the occipito-atlantal ligament cannot be appreciated.

The procedure is dangerous except in skilful hands and deaths have been reported. The advantages over lumbar puncture are: fewer unpleasant sequelae such as headache, and less chance of blood-stained fluid being obtained; the fluid is obtained almost immediately from the ventricles; for encephalography less air requires to be introduced than by the lumbar entrance: for introduction of lipiodol it is valuable.

The patient may be sitting or lying down but in cases of suspected spinal blockage more information is obtained if he is recumbent and lumbar puncture is performed at the same time.

The operation is dangerous in cases of cerebral tumour but less dangerous than lumbar puncture.

J. P. MARTIN.

[11] **Significant chemical changes in the spinal fluid in meningitis.**—M. OSNATO and J. A. KILLIAN. *Arch. of Neurol. and Psychiat.*, 1926, xv, 738.

THE lactic acid content of normal spinal fluid during the fasting and resting state varies from 6 to 10 mg. per hundred cubic centimetres. The lactic acid concentration of the spinal fluid bears a close relation to its concentration in the blood. An increase of the lactic acid of the blood is associated with a similar increase in the spinal fluid, and the reverse of this appears true. An increase of the lactic acid of the spinal fluid and of the blood was found in nephritis and epilepsy following the convulsions. In epilepsy the spinal fluid after the convulsions gave figures for lactic acid exceeding those for the blood obtained at the same time. Spinal fluids obtained from cases of meningitis showed high figures for lactic acid. The source of this increased formation of lactic acid appears to be the cellular metabolism. In some instances no

decrease was noted in the sugar in fluids in which the lactic acid was increased above normal; in others, however, no reaction for sugar was obtained. In no instance did the increase in lactic acid account for all the sugar lost.

R. M. S.

[12] **Yellow spinal fluid associated with tumour of the brain.**—M. W. Comfort. *Arch. of Neurol. and Psychiat.*, 1926, xv, 751.

Xanthochromic spinal fluid associated with tumour of the brain indicates a tumour involving the external or the ventricular surface, and sufficiently soft and vascular, or so surrounded by engorged vessels, as to permit hæmorrhage or transudation into the cerebrospinal fluid. The available evidence points to a hæmolytic origin for this xanthochromia, and the hæmorrhages accounting for the colouration are probably scanty and repeated. The number of erythrocytes present is a measure of the softness and the vascularity of the tumour, and when they are numerous in a yellow spinal fluid operative procedures which markedly reduce the intraventricular pressure are possibly contraindicated.

R. M. S.

[13] **The spontaneous escape of cerebrospinal fluid through the nose.**—C. E. Locke. *Arch. of Neurol. and Psychiat.*, 1926, xv, 309.

Rather elaborate theories have been advanced concerning the cause of cerebrospinal rhinorrhoea, but according to Locke the escape of cerebrospinal fluid from the nose is almost invariably associated with internal hydrocephalus and increased intracranial pressure. The most common lesion which causes a combination of these two factors is a cerebral neoplasm, but inflammatory or congenital obstruction of the cerebrospinal fluid may also be responsible. It is possible that increased intracranial pressure causes atrophy of the cribriform plate, as the dura overlying this region is especially susceptible to penetration because of the tiny holes which are normally present for the exit of the olfactory nerves. Furthermore, the arachnoid membrane and the subarachnoid space continue for a short distance along them. When the thin cribriform plate is atrophied, and the normal openings in the overlying dura and arachnoid are enlarged by increased intracranial pressure, there remains only the ethmoid mucous membrane between the cerebrospinal fluid spaces and the nasal cavity; and this membrane is unable to withstand the pressure placed upon it.

Why there should be a continuous flow of cerebrospinal fluid in cases in which there is an intraventricular obstruction and a proved communication between the cisterna basalis and the nose is not very clear. It may be that we still lack the correct conception concerning the circulation of the cerebrospinal fluid, and that more fluid than we suspect is formed in the subarachnoid spaces. It is also possible that the extraventricular portion of the choroid plexus may be excessively active and in hydrocephalus there may be accessory

openings between the cerebral ventricles and the subarachnoid spaces. The intermittent nature of many of the cases of cerebrospinal rhinorrhoea may be accounted for by a localised, ascending inflammation, the exudate from which may close the fistula for a time until the accumulation of the fluid has caused sufficient pressure for it to break through again.

The only rational form of treatment for this condition is one directed towards the relief of the obstruction of the cerebrospinal fluid pathways, but too great an operative risk should not be taken, as some patients with rhinorrhoea and brain tumour have lived for many years, the escape acting as an effective decompression.

R. M. S.

[14] **Anatomical study of a case of multiple tumours of the meninges** (Étude anatomique d'un cas de tumeurs multiples des méninges).—KRIVY. *Rev. neurol.*, 1926, xlii, 154.

AN old woman who had been for some time under medical care at the Salpêtrière but had not been specially examined, died suddenly. At the autopsy three intracranial tumours were discovered. Two were subtentorial, arising from the dura mater investing the transverse sinus, the larger having the size of a tangerine orange, the smaller that of a cherry. The third of about the same size was attached to the falx cerebri. All these tumours presented the macroscopic and microscopic features common to the group of benign meningeal growths which are best called meningiomas. The situation of the two tumours in this case, in the posterior fossa, was unusual, but in arising from the wall of the transverse sinus they were true to type. It was remarkable that they had given rise to no noticeable symptoms during life.

Various theories as to the origin of these tumours are discussed. When multiple they are frequently associated with multiple neurofibromata. The latter tumours are considered to arise from the sheath of Schwann, which is a development of the ectoderm. Oberling has suggested that the meningeal growths are also of ectodermal origin and has proposed the name meningoblastoma for them. This theory would explain the association.

C. P. S.

[15] **Bifurcation of the spinal cord** (Zwei Befunde von Zweiteilung des Rückenmarkes).—E. HOLLAND. *Monats. f. Psychiat. u. Neurol.*, 1926, lxi, 147.

TWO cases of bifurcation of the cord are described. Each was an accidental finding at autopsy; during life no symptoms referable to the condition were discovered. In each the developmental defect arose at the lumbosacral level. A brief discussion of the nature of this diplomyelia is appended.

S. A. K. W.

[16] **Further studies on the etiology of epidemic hiccup (singultus), and its relation to encephalitis.**—E. C. ROSENOW. *Arch. of Neurol. and Pyschiat.*, 1926, xv, 712.

A STREPTOCOCCUS, alike in morphology and with similar cultural characters and having similar immunilogical reactions, was isolated from the nasopharynx of twenty cases of epidemic hiccup, and with each strain spasms of the diaphragm or other muscles were produced in animals. From these, the organism was isolated and characteristic symptoms again induced on inoculation. It was demonstrated in the lesions, and proved absent elsewhere, by microscopic examination of sections.

Similar experiments, made with streptococci from cases of poliomyelitis and other diseases of the nervous system, from poliomyelitis contacts, from normal controls and from patients that had recovered from hiccup, gave strikingly different results. The possibility of an accompanying filterable virus (in the usual meaning of that term) being the cause of the spasms was excluded by the successful reproduction of characteristic symptoms with some of the strains after many rapidly made subcultures, with the dead streptococci, and with filtrates of active cultures, the symptoms in the case of filtrates beginning in from one to three hours after injection.

The close relationship believed to exist between epidemic hiccup and epidemic encephalitis, and indicated by epidemiological findings, receives much support in these experiments. The symptoms and lesions in the animals that succumbed were similar to those in fatal cases of hiccup reported in the literature. In some instances, especially after one or more passages through animals, and after many subcultures, the streptococcus from cases of hiccup no longer produced spasms of the diaphragm but instead lethargic or other forms of encephalitis. Spasmodic torticollis, which developed as a late manifestation, was as common in the hiccup series as in the encephalitis experiments. The strains from the two diseases, culturally indistinguishable, are cross-agglutinated, and the cleared nasopharyngeal extracts in a sodium chloride solution cross-precipitated by the respective antistreptococcus sera; and the encephalitis hyperimmune horse serum had marked curative effects in animals having spasms of the diaphragm following injection of the streptococcus from cases of hiccup. The results from serum and vaccine treatment of cases, while striking, were too few to be conclusive. The facts, however, that the serum had a marked curative effect on animals under controlled conditions, that horse serum had no effect and that active immunization afforded protection for rabbits injected with the hiccup streptococcus, afford a rational basis for attempts at passive and active immunization. R. M. S.

[17] **Experimental studies on Sydenham's chorea** (Études expérimentales sur la chorée de Sydenham).—E. HERMAN. *Schweiz. Arch. f. Neurol. u. Psychiat.*, 1925, xvii, 19.

ORDINARY cultures of the spinal fluid of patients suffering from Sydenham's

chorea are negative. The fluid, however, contains a filterable virus, capable of producing nervous and corneal lesions when suitably injected into rabbits. It has a special affinity for ectodermal tissue, and may be designated a neurotropic virus (cf. the virus of epidemic encephalitis, poliomyelitis, rabies, herpes). When rabbits are inoculated with it clinical symptoms (convulsions, tremulous movements) may develop, and pathological changes (mainly of a general character) may be found.

S. A. K. W.

SENSORIMOTOR NEUROLOGY

[18] **Palilalia—a rare symptom of the post-encephalitic Parkinsonian syndrome** (Un symptome rare dans le syndrome post-encephalitique parkinsonien : la palilalie).—RORDORF and COCCHIARARO. *Rev. neurol.*, 1926, xlii, 144.

A MAN, age 26, had a typical attack of encephalitis lethargica followed by Parkinsonian rigidity, chiefly affecting the left limbs. On the left side also, the plantar response was absent and an ankle clonus was obtained, indicating pyramidal involvement. Three years after the onset of the original illness he began to develop palilalia. Words and short phrases were repeated, at first slowly and then with increasing rapidity as breath failed him until the end of expiration. The number of repetitions varied from two or three to twenty or twenty-five. Spontaneous and dictated utterances were equally affected and the disability was equally marked in answers to questions. There was no aphasia. The mental state was that of 'viscosity,' commonly encountered in these cases, without any other psychic disturbance. The palilalia disappeared when the patient chanted or intoned his sentences. The symptom was least apparent after waking in the morning. It was unaffected for better or for worse by a variety of psychotherapeutic and electrical methods of stimulation but temporarily improved by the application of a vibrating machine to the body.

Palilalia has been recorded as a rare symptom of pseudobulbar palsy and in several other cases of encephalitis lethargica. The authors discuss at length the probable localisation of the lesion without arriving at any definite conclusion except that it is a release-phenomenon. They remark that in several recorded cases, including their own, the symptom has been associated with motor involvement, chiefly of the left side of the body.

C. P. S.

[19] **Parkinsonian states.**—G. B. HASSIN and P. BASSOE. *Arch. of Neurol. and Psychiat.*, 1926, xv, 218.

THE similarity between paralysis agitans and the so-called postencephalitic Parkinsonian syndromes is so great that certain authors consider them, clinic-

ally as well as pathologically, identical morbid entities. Netter, for example, maintains that in certain instances Parkinson's disease is caused by the virus of epidemic (lethargic) encephalitis, which is responsible for its sequelae ("accidents tardifs"). Souques goes even further, for he looks on both the classic and postencephalitic types as clinical manifestations of one disease, paralysis agitans, the difference being in the degree of the lesion. When the encephalitic process in the mesencephalon is slight and 'reparable' a Parkinsonian syndrome is produced; if the lesion is irreparable, paralysis agitans results. In contrast to the foregoing teaching, Lhermitte and Cornil, Marinesco and the Vogts consider the two conditions distinct morbid processes, basing their views mainly on pathological grounds.

In the opinion of Hassin and Bassoe it is not proper to look on paralysis agitans as an end result of encephalitis, or to consider it an equivalent of a postencephalitic syndrome. In support of this view they describe four cases. One was a syphilitic patient in a postencephalitic state; one a similar condition following a head injury in a child; one a case of genuine paralysis agitans, and one a Parkinsonian state in acute epidemic encephalitis. In all four cases the clinical picture presented features of Parkinsonism. In none was the pyramidal system affected, the changes being more or less diffuse and involving the basal ganglia and the substantia nigra. In the third case (paralysis agitans) the changes were degenerative only, while in the others—all examples of postencephalitic Parkinsonism—they were both degenerative and inflammatory, although the duration was practically the same in the first three cases.

R. M. S.

[20] **The antagonism between Parkinsonian micrographia and cerebellar megalographia** (Über den Antagonismus zwischen der parkinsonistischen Mikrographie und der cerebellären Megalographie).—M. Petitpierre. *Schweiz. Arch. f. Neurol. u. Psychiat.*, 1926, xvii, 270.

A study of a number of cases exhibiting the phenomena of micrographia or of megalographia provides material of much interest, but the author's discussion of their pathogenesis leaves somewhat to be desired. His general conclusion is that increase or diminution in the height of the letters is to be ascribed to alterations in 'metria,' i.e., to a dysmetric change; regular small or big handwriting is a sequel to alteration in muscle tonus.

S. A. K. W.

[21] **Hepato-lenticular degeneration; clinical, anatomical and experimental study** (La dégénéréscence hépato-lenticulaire; étude clinique, anatomique et expérimentale).—Ivan Mahaim. *Schweiz. Arch. f. Neurol. u. Psychiat.*, 1925, xvi, 252.

Dr. Mahaim gives a very elaborate and painstaking study of a case of Wilson's

disease, both clinical and pathological, and the value of his paper is increased by the record of a series of experiments in the production of hepatic cirrhosis.

He approves of the suggestion that Wilson's disease, pseudosclerosis, and torsion spasm should be classed together as hepato-lenticular degeneration. Destructive lesions of the globus pallidus may result in the development of athetoid movements, though one cannot conclude these are the sole lesions having that sequel. Injections of dilute alcohol into the biliary passages are followed by primary lesions of hepatic cells. In the dog primary and chronic lesions of the liver are accompanied by serious, generalised changes in the nerve-cells of the brain, less marked in the basal ganglia than in the cortex. They also affect vasculo-glial changes in the basal ganglia, especially the caudate and the optic thalamus. Hence it is highly probable that in hepato-lenticular degeneration the hepatic lesions precede the nervous lesions.

S. A. K. W.

[22] **Some phasic and permanent mutations in certain encephalitic syndromes.** —I. ABRAHAMSON and A. N. RABINER. *Jour. Nerv. Ment. Dis.*, 1924, lx, 249.

CERTAIN cases of postencephalitic phenomena are described in which the rigidity suddenly disappeared under the influence of rest, change of mood or other factor. From these sudden alterations of muscle tone the presence of a central organ of muscle tone is deduced, which may be influenced by psychic or physical agencies.

R. G. GORDON.

[23] **Encephalitis periaxialis diffusa of Schilder.**—S. BROCK, P. M. CARROLL and L. STEVENSON. *Arch. of Neurol. and Psychiat.*, 1926, xv, 297.

A BOY, age 9, of Russian Jewish parentage, developed intention tremor of both hands, with defective memory and inability to read. A month later, to increasing difficulty in vision were added deafness and weakness of the right lower extremity. These symptoms gradually increased in severity, and thirteen months after the onset the patient could neither stand nor walk. The pupils were dilated, but active to light and on accommodation; the fundi were normal. The superficial reflexes were absent, the knee and ankle jerks exaggerated, and a bilateral Babinski sign present. Spontaneous unmotivated grimacing, anarthria and difficulty in swallowing were also noted. The patient became very emaciated and while in hospital his temperature varied between 98° and 100° F. Death occurred sixteen months after the onset of the illness.

The post-mortem findings were typical, the brain showing a bilateral lesion of the white matter, commencing in the occipital region and extending forward as far as the anterior portion of the corpus striatum. The brain stem and cerebellum appeared normal. The affected areas were rough, gelatinous,

and of a slightly darker colour than the normal white matter. A narrow, white band, representing the normally myelinated portion of the neurones, could be seen immediately beneath the grey matter of the cortex. The diseased neurones were almost completely denuded of myelin, and the axis cylinders, although better preserved than the myelin sheaths, were not normal. Fat droplets were found beneath the cortical grey matter, and the large globoid cells which appear to be a prominent feature in the cellular pathology of this disease occurred in considerable numbers. The glial fibres were dense, and spider cells numerous in the demyelinated regions.

The paper is well illustrated, and concludes with a useful analysis of the symptoms in the thirty-three cases which have been recorded.

R. M. S.

[24] **Signs of acute proved cases of intracranial haemorrhage in the newborn.** —A. S. Maclaire. *Med. Journ. and Rec.*, 1926, cxxiii, 215.

The most frequently observed sign in a series of 45 cases of intracranial hæmorrhage in the first 48 hours of life was twitchings of the hands. Next in frequency was twitchings of the feet. Other signs included cyanosis, enfeebled sucking, convulsions, unusual drowsiness, rigidity of the extremities, jaundice, respiratory difficulties, twitching of the mouth and face, epistaxis, a weak cry, vomiting, frothing at the mouth, failure to cry, supranuclear facial palsy and increased intracranial pressure. Clear cerebrospinal fluid in a suspected case negatives the possibility of hæmorrhage. The treatment consists of lumbar punctures repeated every six to twenty-four hours until clear cerebrospinal fluid is obtained. Cranial drainage is advised if the fluid does not become clear.

Lewis Yealland.

[25] **Sensory disturbances in multiple sclerosis: their significance in diagnosis.**—Otto Sittig. *Arch. of Neurol. and Psychiat.*, 1926, xv, 537.

The author believes that not only are disturbances of sensibility in multiple sclerosis frequent, but that there is scarcely a case in which they do not occur. Fugitive, rapidly shifting paraesthesias are characteristic symptoms, and appear to have a high diagnostic value. They may be divided into various groups on the basis of distribution and frequently shift from one side of the body to the other. They may affect all of one side or be confined to certain parts (face, arm, hand, one or more fingers); or they may present a segmental distribution (preaxial or postaxial type). In one of Sittig's cases the paraesthesias affected one side of the body and resembled sensory Jacksonian attacks.

Objective disturbances of sensibility are also frequent. They may appear on one side of the body—hemihypæsthesia or hemihypalgesia; they may

involve separate parts of the body, such as the face, or they may have a segmental distribution. In the author's series of fourteen cases disturbances of sense of movement were frequently observed in the toes, while in one case astereognosis was present. Pains in multiple sclerosis are rare and seldom dominate the clinical picture. However, in four cases of the series reported, severe pains were manifest from time to time. In one, the disease began with sciatica on one side; in another, during the later course of the disease, severe pains appeared in an upper arm; in a third case, the disease began with severe rheumatoid pains in one side of the thorax and in the shoulders.

R. M. S.

[26] **Research problems in epilepsy.**—CHARLES E. GIBBS. *Amer. Journ. Psychiat.*, 1926, iii, 415.

MUCH having been written about epilepsy and many observations made from the different standpoints of psychiatry, neurology, metabolism, immunity, etc., the available facts and opinions should be gathered together as a basis for some co-ordinated and comprehensive plan of research. With regard to the endocrines, it seems wise at the present time merely to consider whether the function of these glands may be involved in one disease manifestation or another, rather than to attempt to explain the total clinical picture in terms of too much or too little of one gland or another, and research should be developed from a broad clinical and biological point of view.

The psychopathic personality and manifestations may be regarded as an end-result, to which a variety of factors have contributed, and it seems best to work back from the patient as a clinical entity to the particular factor to be investigated.

The endocrine glands may specially be studied in relation to metabolism and the development and physiology of the brain, and valuable knowledge may be gained by further correlation of the epileptics' heredity and personality with those of other types of psychotics.

E. B. G. R.

[27] **Epileptoid reactions in children.**—V. C. BRANHAM. *Amer. Journ. Psychiat.*, 1926, iii, 423.

THE original conception of epilepsy as a seizure or loss of consciousness has been enlarged by Jackson's writings, as well as by the study of myoclonus, the concept of epileptic 'equivalents,' and the delineation of the epileptic personality as a clinical entity. The term epileptoid is used in this paper to cover miscellaneous manifestations, epileptiform in character, where actual fits are unrecorded. Three classes are included under the term: (1) masked (nocturnal) epilepsy; (2) unrecognised petit mal; (3) epileptoid reactions proper. In this group no seizures occur, but unrecognised aurae, myoclonus or other physical symptoms associated with epilepsy are present. The child

may have the emotional instability of the epileptic, be obstinate and oversensitive, ill-regulated in his activity and lie or steal to a pathological extent. Three main facts characterise his history : (1) the occurrence of infantile convulsions ; (2) hereditary predisposition to epilepsy ; (3) retarded intellectual development. He is not a ' problem case,' but is mentally ill and may be treated by sedative and endocrine therapy, reduction of emotional strain and the re-education of his parents.

E. B. G. R.

[28] **Complex and co-ordinated actions carried out during epileptic crises of cerebral automatism** (Actes complexes et coordonnés accomplis au cours de crises épileptiques d'automatisme cérébral).—TOULOUSE, MARCHAND and LITVAK. *Bull. soc. clin. de méd. ment.*, 1924, xvii, 46.

THE case of a woman of 39, epileptic for six years. The fits are not severe and only once caused a fall. Some of them are followed by a short period of automatism, of which examples are given. On one occasion she made and served tea, ate and drank and answered a question, entirely automatically. The author asks whether in such cases there is complete or partial interruption of consciousness, or whether the disorder is not of memory. In the discussion it was elicited that the patient was being treated with luminal (dose not stated) and pilocarpine, and that it was since this treatment began that fits were partly replaced by automatic interludes.

W. D. C.

[29] **Unexpected fits.**—GORDON F. PETERS. *Journ. Ment. Sci.*, 1926, lxxii, 215.

BY an " unexpected fit " is meant a convulsive seizure of some kind occurring in a patient who had not been previously classified as suffering from epilepsy or general paralysis at the time of the fit. The fits were mostly general convulsions of the epileptiform type ; several resembled typical attacks of major epilepsy. In others the convulsions were somewhat less generally distributed and in one case there was only spasmodic twitching of one limb and the face, in addition to the state of coma. After excluding (out of 51 cases) 19 cases which had a definite causation, and 8 cases about which the information was scanty, the cause of the fits was considered to be obscure in 24, viz., in 55 per cent. of the series. All these 24 cases had some debilitating physical states, and all had well marked mental symptoms. Twelve out of the 24 had conditions which are known to be associated with epilepsy in certain circumstances, and four were cases of dementia præcox. Of the remaining 12, eight also were cases of dementia præcox ; and four had symptoms strikingly suggestive of disturbed endocrine balance. In the whole series there were only two other cases showing signs of endocrine derangement to a marked degree. One of them was a case of myxœdema in which the fit

was definitely due to uræmia, and the other was a case of chronic mania with otitis media; but although otitis media may lead to fits, it was extremely unlikely, on clinical grounds, that it did so in this case. The numbers concerned are small; but so far as they go, and after excluding those cases which presented lesions commonly associated with epilepsy, 66 per cent. of the remainder were well marked cases of dementia præcox, and 33 per cent. strongly suggested a disturbance of endocrine balance. There would, therefore, seem to be some justification for the presumption that, in the only cases which lacked potential and ascertainable fit-causing lesions, disturbance of the endocrine secretions of the thyroid gland and ovaries took their place. Moreover there was no reason to suppose that there was any other more definite pathological factor in common than this, which is highly suggestive of some connection between endocrine disturbance and the incidence among the insane of "unexpected fits."

C. S. R.

[30] **The reflex of the external malleolus and Piotrowski's phenomenon** (Der Reflex des Malleolus externus und das Piotrowskische Phänomen).—K. Sagin. *Monats. f. Psychiat. u. Neurol.*, 1926, lxi, 188.

When the anterior margin of the external malleolus is tapped with a percussion hammer, the foot being in slight passive dorsiflexion, a contraction of the gastrocnemius and consequent extension of the foot occur in certain cases. Occasionally adduction is added to the extension, and occasionally, also, plantar flexion of the toes. This reflex is not seen in normal individuals, or in hysteria or other functional cases; it is found in organic cases of a spastic paraplegic variety, and is sometimes called Piotrowski's phenomenon, after the author of its original description (1912). It is to be distinguished from the tibialis anticus sign, the usual dorsiflexion of the foot when that muscle is percussed, but it is also readily obtainable in many pathological cases when the tibialis in its lower third, and not only the external malleolus, is tapped.

In 317 organic cases (Stern) it was found mainly in pyramidal disease. On the other hand, Falkowski found it also in some instances of extrapyramidal disease, and concluded further that it was of cerebral and not of spinal origin. The reflex has also been studied by Siemionkin in 547 nervous cases, and as he obtained it in cases of schizophrenia and catatonia as well as in others he considers it is of extrapyramidal significance. It has been found, like the Babinski reflex, immediately after an epileptic fit. The author examined 72 nervous cases of the most diverse kind, including both mental and neurological conditions, and noted its presence in 37 cases, but he does not come, apparently, to any decision either as to its locus or its differentiating significance.

S. A. K. W.

[31] **The cutaneous reflex of the chin** (Le réflexe cutané du menton).—De Castro. *Rev. neurol.*, 1926, xlii, 11.

Marinesco and Radovici have described a reflex contraction of the muscles of the chin following stimulation of the palm of the hand, especially the skin of the thenar eminence or index finger with a blunt object. This reflex, they claim, is to be obtained in about 50 per cent. of normal individuals.

The writer has obtained it rarely in normal persons, but frequently in hemiplegics on the affected side. Of greater value is a contraction of the chin muscles in response to direct stimulation of the overlying skin by scratching it lightly with a pin. This reflex is not present in normal persons but may be seen in high lesions of the pyramidal tract. A case is recorded in which the reflex was sought for and found to be absent in a chronic alcoholic. A few days later he had a cerebral hæmorrhage. Two hours after the onset, both the palm-chin reflex and the direct chin reflex were present.

C. P. S.

PROGNOSIS AND TREATMENT

[32] **The use of bismuth preparations in the treatment of tabes dorsalis and paresis.**—L. J. Foster and W. A. Smith. *Jour. Nerv. Ment. Dis.*, *Dis.*, 1924, lx, 472.

Twenty-three unselected cases of tabes dorsalis and ten of paresis were treated with bismuth, and observed from four months to one year afterward. Improvement in subjective complaints was noted in practically all cases. The treatment was especially effective for pain, numbness, urinary disturbances and ataxia. The prompt relief of severe pains was gratifying. Some of the patients who had been chairfast became able to walk. Incontinence and retention of urine were either completely relieved or improved in most instances. Impairment of vision did not progress in any case, and in one case it was definitely improved. The findings on neurological examination were usually unchanged, and the treatment exerted no marked influence on the serology.

One case of paresis showed a remission following treatment which may or may not have been induced by the treatment.

Stomatitis and local induration were the only ill effects, both of which can be avoided with proper precautions.

In the authors' experience bismuth has yielded as good results as any other form of antiluetic treatment in cases of tabes dorsalis and paresis.

R. G. Gordon.

[33] **Further observations on the treatment of neurosyphilis with tryparsamide.** — P. A. O'Leary and S. W. Becker. *Med. Journ. and Rec.*, 1926, cxxiii, 305.

The use of tryparsamide at the Mayo Clinic extending over a period of three years, in 207 cases, leads the writers to believe that it is of value in the treatment

of the paretic type of parenchymatous neurosyphilis. Evidence based on subjective and serological improvement justifies the assertion that there is a certain small group of patients with early paresis who derive marked benefit from tryparsamide. In seven cases in the whole series there was a complete return of the spinal fluid findings to a normal state, but no associated clinical improvement. The clinical and serological criteria by which to determine beforehand the patients with paresis who will improve could not be ascertained. The use of bismuth intramuscularly in conjunction with tryparsamide seems to offer better therapeutic results than either given alone. This treatment, however, does not seem to offer as much encouragement as the treatment of general paresis with malaria, but it is indicated in patients not suited to the risk of the latter treatment.

LEWIS YEALLAND.

Endocrinology.

[34] **The present position of vegetative nervous therapy** (Der heutige Standpunkt der Vagus- und Sympathicus-therapie).—GLASER, *Fortschr. d. Med.*, 1926, xliv, 11.

THIS is a review of the action of the vegetative nervous system on various organs and of the ways in which this action may be influenced and made to serve a therapeutic purpose in disease.

Nearly all the elements of the febrile state are manifestations of sympathetic hyperactivity and the drugs of the antipyretic group act in opposition to the sympathetic and aid the vagus. In certain fevers, especially in severe cases of influenza, the sympathetic centres or nerve endings may be poisoned and then a nervous heart failure may ensue ; this must be combatted by stimulants of the sympathetic. Whooping cough and asthma among respiratory diseases are influenced by therapy directed towards the vegetative nervous system ; and in the circulatory system, the cardiac neuroses, and hyperpiesis and angina pectoris ; among gastric disorders cardio-spasm, pyloric spasm and loss of appetite depend on sympathetic and vagal activity. Recent work on the control of the gall-bladder and the reflex influence of gall-bladder disease on the stomach and bowel via the vegetative nervous system are considered.

As regards the kidneys, glomerular nephritis is influenced by diuretics which cause a release of arterial spasm, and orthostatic albuminuria depends on vegetative nervous factors. Endocrine diseases and diabetes, and disorders of menstruation also are much affected by the vegetative system.

Though it contains no original matter this is a useful review and it is accompanied by a considerable bibliography of recent work, which gives it value as a reference article.

J. P. MARTIN.

[35] **A contribution to the study of basal metabolism in acromegalics** (Contribution à l'étude du métabolisme basal chez les acromégales). —CESTAN, SENDRAIL and LASSALLE. *Rev. neurol.*, 1926, xlii, 1.

Two cases of acromegaly are described and illustrated. In the first, a woman, age 32, there were no glandular symptoms except amenorrhœa. The basal metabolism was 20.5 per cent. above normal. In the second case, a male, age 45, five years after the onset of headache and enlargement of the head, polyuria, weakness, somnolence and impotence developed. In this case the basal metabolism was 33 per cent. below normal.

The authors refer the increased metabolic rate in the first case to irritation of nerve centres in the floor of the third ventricle and the diminished rate in the second case to destruction of these centres.

C. P. S.

[36] **The suprarenal cortex and blood cholesterol in dementia præcox.**—CHARLES E. GIBBS. *Amer. Jour. Psychiat.*, 1925, v, 189.

THAT some disturbance of lipoid metabolism may occur in dementia præcox and may involve the suprarenal cortex, has been suggested by the following: (*a*) Previous observations on the sexual development and behaviour of these patients. (*b*) The evidence that the suprarenal cortex is involved in disturbances of sexual development. (*c*) The evidence that the suprarenal has both an embryological and functional relation to the gonads on the one hand and to the brain on the other. (*d*) Substances of a lipoid nature play an essential part in the functional metabolism of each of these organs. (*e*) The female sex hormone and the vitamine for reproduction are both of a lipoid nature. (*f*) The low basal metabolic rate frequently observed in dementia præcox suggests an involvement of the suprarenal. The evidence for these considerations is reviewed. The significance of cholesterol is discussed. Experimental results seem to show that in many patients with dementia præcox the blood cholesterol is unusually low, and that it may be more directly correlated with the psychosis and with sex than with any other recognized factors. That some correlation with sex seems to exist is considered significant and in accord with the considerations which suggested the work.

C. S. R.

Psychopathology.

NEUROSES AND PSYCHONEUROSES.

[37] **The mental factor in miners' nystagmus.**—H. WILFRED EDDISON. *Journ. Ment. Sci.*, 1926, lxxii, 201.

THE clinical picture of the condition varies with the mental characteristics of the subjects. The mode of onset may be gradual or sudden. In the latter

case it is usually determined by injury, local or general, accident or illness, or by the patient having his attention drawn to the fact that he has a latent condition of nystagmus. There are three varieties of the condition: (1) 'Latent,' in which nystagmus is present without causing any other signs or any subjective symptoms, the patient often being unaware of its presence. (2) 'Manifest,' with the usual signs and symptoms. (3) Psychoneuroses simulating the signs and symptoms of nystagmus without the presence of nystagmus. Such states are usually of the nature of hysteria or anxiety neurosis, in which symptoms referable to the head and eyes are prominent. A case in group (1) is easily convertible by means of a mental stimulus into group (2) and this one merges through every intermediate gradation into group (3). In a large proportion of cases a neurotic predisposition is evident. Neurotic signs and symptoms may precede, accompany or follow nystagmus already established. The clinical picture is strongly suggestive of that of a neurosis as regards: (*a*) The prevalence of hysterical or anxiety symptoms. (*b*) The fact that when obviously neurotic symptoms supervene in a case of socalled simple nystagmus, they are inseparably incorporated amongst those which other writers regard as being secondary to the nystagmus. (*c*) The fact that many of the socalled secondary symptoms would appear to have a strongly neurotic element in their etiology. Nystagmus may take part in an abreaction. The course of the case under treatment is a good example of the dependence of the patient upon the physician, characteristic of hysteria. The patient exhibits resistance against the removal of his symptoms, of which he is unaware, and over which he has no control. The institution of compensation has resulted in an increase in the number of cases certifiable. The two factors of paramount importance etiologically are the following: (*a*) An element of danger is always present; (*b*) owing to limited illumination the men are always working under a relative ocular disability. In the author's opinion the danger element determines the outbreak of the neurosis, and the eyestrain the predominantly ocular form. The nystagmus, as well as the other signs and symptoms, is temporarily benefited by psychotherapy. It is suggested that, in the future, treatment should resolve itself into that of (*a*) exclusion from the industry of all men predisposed to neurosis of any kind; (*b*) improved methods of illumination at the coal-face; (*c*) psychotherapeutic treatment of those already affected.

C. S. R.

[38] **A need of support, transformed to delusions of influence, in a psychasthenic patient** (Du besoin de réconfort au sentiment et au délire d'influence chez un psychasthénique).—A. CEILLIER, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 74.

A MARKED case of constitutional psychasthenia in a man of 34, with morbid symptoms fully detailed. In earlier years the yearning for affection, support

and consolation demonstrated by Janet as so common in these cases, was very obvious. Generally this yearning has been replaced by a feeling of domination, influence, and suggestion.

It is pointed out that as a rule delusions of influence are secondary to automatic phenomena, the patient having the feeling that his actions are due to outside influences. In this case the idea of influence appears to be to a certain extent independent. The author considers that delusions of influence may constitute a syndrome which may be reached in different ways.

W. D. C.

[39] **The neurotic goal in post-war neuroses.**—JOHN W. VISCHER and GERTRUDE SARKER. *Mental Hygiene*, 1926, x, 354.

THIS article gives the history of several patients suffering from post-war neuroses unsuccessfully treated by repeated hospitalisation. In agreement with Adler's theory, the authors consider the cause of the neuroses described lies in a feeling of inferiority, which the patient seeks to compensate by undertaking work of too ambitious a nature for his abilities. With failure of achievement, neurosis results. Psychotherapy has proved of no permanent value in curing these cases and the best solution lies in careful vocational guidance.

E. B. G. R.

PSYCHOSES.

[40] **Influenza and schizophrenia** : an analysis of postinfluenzal dementia præcox as of 1918 and five years later.—KARL H. MENNINGER. *Amer. Journ. Psychiat.*, 1926, v, 469.

THERE are three outstanding features in the analysis made of the data pertaining to postinfluenzal psychoses of the schizophrenic type : (*a*) Schizophrenia was relatively the most frequent psychiatric syndrome ; (*b*) it occurred with and without evidence of hereditary taint or predisposition ; (*c*) most of the cases so diagnosed made more or less complete recoveries. If we retain the Kraepelinian conceptions of dementia præcox, we must suppose that influenza precipitated many cases which seemed in the acute phase to be dementia præcox, but of which relatively few ultimately verified this early diagnosis, and were somatic or cyclothymic psychoses of strongly schizophrenoid colouring. For those, including the author, who reject Kraepelin's conception of dementia præcox in favour of the conception of a schizophrenic syndrome, representing certain kinds of phases of psychic disintegration arising upon varied bases and following varied courses, the conclusions from the influenza series would be that many such schizophrenic syndromes occurred immediately subsequent to influenza, but of the entire series the great majority of cases ultimately recovered, some promptly, some only after a year or more ; a few progressed to various degrees of dementia. This would indicate a relative benignity of the process. This schizophrenic picture has been reported under a

variety of names by most of the writers on postinfluenzal psychoses. All agree that the syndrome occurs in both predisposed (schizoid) and unpredisposed (syntonic) individuals. There is some disagreement as to the relative frequency of the schizophrenic syndrome, but general agreement as to the good prognosis. The small evidence of all the major psychoses subsequent to influenza, relative to the enormous morbidity of influenza, would indicate that while influenza-schizophrenia relationships offer much subtle material for elucidating the inner structure of mental mechanisms, they do not offer many direct problems of management or treatment. C. S. R.

[41] **Obsessions in their relation to psychoses.**—Alfred Gordon. *Amer. Journ. Psychiat.*, 1926, v, 647.

An analysis of the cases here described leads to the following conclusions: (*a*) Obsessive neurosis as a clinical entity may exist throughout the entire life of an individual continuously or more frequently episodically without admixture of manifestations of a psychotic disorder. (*b*) Obsessions may occur symptomatically in the course of chronic paranoia or dementia præcox. In such cases they may be considered of the same order as any other morbid phenomenon characteristic of paranoid or schizophrenic types of individuals, in whose life various morbid manifestations of a psychotic nature may occur episodically. (*c*) When delusions in paranoia and dementia præcox are fully developed, the former obsessive phenomena usually subside or disappear. (*d*) Obsessions may occur in the course of many mental affections. (*e*) A direct transformation of an obsessive into a delusional idea is possible but it is not very frequent. (*f*) More frequently the obsessions form a point of departure for the development of delusions by a process of argumentative interpretation, which is especially strong in paranoid individuals and this is particularly marked in cases in which the obsessions are persistent. (*g*) A paranoid individual after having elaborated his delusions may include in the latter his former obsessions, or else develop new delusional ideas with a different content. (*h*) Transitions of obsessions into delusions, infrequent as it is, may be observed both in paranoid states and in affections of a depressive nature, especially when the latter repeat themselves and are persistent. (*i*) The existence of obsessions in the life of an individual has no direct bearing upon the form of psychosis which may develop later. It only implies the existence in that individual of a psychic dissociation of personality which reaches its maximum during the paroxysm. The newer conception of dissociation of personality, concerning the forces which are at work in the formation of obsessions which may or may not develop into delusions, is, perhaps, of great value and fruitful in the consideration of the subject. Though the mere existence of obsessions over a prolonged period does not necessarily suggest the later development of a psychosis, it renders the individual potentially psychotic. C. S. R.

[42] **Postencephalitic Parkinsonism and a depressive psychosis** (État parkinsonien post-encéphalitique et psychose dépressive).—J. CUEL and M. CENAC, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 183.

A WOMAN, age 32, suffered from typical though unrecognised epidemic encephalitis in 1920. Lethargy, nocturnal restlessness and other symptoms persisted. In 1922 she gave birth to a healthy child. From this date definite Parkinsonism developed and she became very depressed and suicidal. The pregnancy had a serious effect on her illness and the prognosis is now bad.

W. D. C

[43] **Simultaneous hebephrenia in two brothers** (Hébéphrénie simultanée chez les deux frères).—A. MARIE and BERNADOU, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 213.

THE cases of two brothers who were each attacked by hebephrenia at the age of 18. The heredity included tuberculosis and psychosis. There was a difference of 14 years in age between the patients, and the younger nursed his brother for several years. A similar case in three brothers is quoted. The author is impressed by the indications of an infection as the cause, but in the discussion it was observed that the constitutional factor is at least equally important.

W. D. C.

[44] **Systematic destructiveness** (Clastomanie systématique).—J. CAPGRAS and J. REBOUL-LACHAUX, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 82.

THE case of a woman of 58, insane for seven years, who exhibited such intractable destructiveness of everything that can be torn or broken that for four years she has had to be maintained naked in a room furnished only with a heap of seaweed. The psychosis is manic-depressive but atypical—a mixture of melancholic ideas and manic conduct. The patient shews remarkable cleverness in getting possession of destructible articles, and great pleasure in their destruction. When questioned she states that Christ is shut up in the asylum and she must do what she can to aid in His liberation. It is not a case of the aimless destructiveness seen in elderly, anxious melancholics. At the beginning of her illness it was impulsive and was ascribed by the patient to the influence of some diabolic agency, but later this secondary delusion became of primary importance in affecting her conduct and she claimed that she heard voices ordering her to tear and to destroy.

W. D. C.

[45] **A case of simple erotomania lasting 37 years** (Erotomanie pure persistant depuis 37 années).—G. DE CLERAMBAULT and LAMACHE. *Bull. soc. clin. de méd. ment.*, 1923, xvi, 192.

A DETAILED study of a case of uncomplicated and fixed erotomania in a woman

of 55. The condition was precipitated at the age of 17 and has persisted since, unaffected by marriage or by numerous infidelities. The mentality of the patient is examined at length and the absence of any other psychotic symptom is emphasised. The author points out that as a rule erotomania is a syndrome grafted on to and later absorbed by a chronic delusional state, but in certain cases, such as this, it is autonomous and independent.

W. D. C.

[46] **Some varieties of erotomania** (Quelques variétés d'érotomanie).—J. CAPGRAS, *Bull. soc. clin. de med. ment.*, 1923, xvi, 148.

THE syndrome of erotomania in women may be acute and transitory, or chronic. The latter may also be divided into the paranoiac type with delusional interpretations and a tendency to develop persecutory ideas, and the pure or intuitional type restricted to amorous ideas and daydreams. Illustrative cases are described and their letters quoted.

W. D. C.

[47] **Remarks on the pathological alterations of the cortex caused by psychoses.**—O. MARBURG. *Jour. Nerv. Ment. Dis.*, 1925, lxi, 225.

THE influence of meningeal involvement on the subjacent cortex has been overrated, except in general paralysis and some senile cases. Taking four types of psychosis—schizophrenia, manic-depressive, general paralysis, and senile psychosis—the author finds that pathologico-anatomical differences may be detected in the neurones, in the glia, and in the blood vessels. The localisation of the lesions is regarded as of considerable importance. From these studies the author is led to the conclusion that general paralysis represents a dual, parallel, degeneration of an infective and of a parenchymatous type.

R. G. GORDON.

[48] **Traumatic dementia in the course of a state of instability of chronic manic type** (Evolution démentielle post-traumatique au cours d'un état de déséquilibre habituel à type manie chronique).—H. CLAUDE, A. BOREL and G. ROBIN, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 169.

A WOMAN of 38 was knocked over by a train and sustained a fracture of the outer table of the right parietal bone, her mother at the same time being killed. From the age of four she had been eccentric, unstable, emotional and excitable, but able to earn her living. Since the accident she has been in a state of chronic mania and progressive dementia.

W. D. C.

[49] **Neologistic logorrhoea in a case of chronic hallucinatory insanity** (Logorrhée néologique chez une malade atteinte de délire hallucinatoire chronique à manifestations polymorphes, etc.).—M. CENAC, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 68

THE case of a woman of 48 suffering from hallucinations of hearing, smell and general sensation, delusions of persecution and grandeur, and uncertainty of personality; perfectly oriented, lucid and with good memory, indicating complete absence of enfeeblement; with at the same time marked disorders of posture and especially of language, viz. neologisms, corrupted and meaningless words, and verbal stereotypy. Her conversation consists largely of phonemes—in Forel's description, a 'salad of words.' A number of examples are given, and it is concluded that the case is probably one of paranoid dementia.

W. D. C.

[50] **An inveterate wanderer with amputated legs** (Amputé des deux jambes, fugueur invétéré).—R. TARGOWLA and H. CODET, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 178.

AN account of a man, age 25, who lost both legs below the knee at the age of six, and thereafter exhibited incessant motiveless fugues. There were marked changes in his temperament, and immoral tendencies. The fugues were not epileptic, hysterical or due to any obsession, and there was no manic-depressive syndrome. The patient has parole from the asylum and has shown no desire to go away.

W. D. C.

[51] **An impulse conscious and without amnesia, probably epileptic** (Impulsion lucide et mnésique, vraisemblablement comitiale).—G. G. DE CLERAMBAULT, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 237.

A CASE of assault by a man, age 28, of morbid heredity, who had been previously under care as a precocious dement, and who had had fits for some years. The outburst followed severe migraine and the patient remembered all details.

The medicolegal importance of the case is stressed, especially in view of the absence of amnesia. The author has no doubt that the incident was genuinely epileptic and other similar cases are quoted in which also the memory was perfect.

W. D. C.

[52] **A Wandering Jew who developed delusions of persecution** (Israélite dromomaniaque devenu persécuté migrateur).—P. ABELY, *Bull. soc. clin. de méd. ment.*, 1923, xvi, 160.

THE record of a Turkish Jew who had wandered over the world for 45 years. Misfortune befell him, persecutory hallucinations developed, and he sought refuge in an asylum.

W. D. C.

PSYCHOPATHOLOGY.

[53] **Some clinical aspects of certain emotions.**—Donald E. Core. *Brit. Journ. Med. Psychol.*, 1925, v, 310.

This paper is an attempt to correlate certain psychical phenomena with groups of clinical symptoms and to assess the biological value of functional nervous diseases. An emotional tone indicates the reaction of an organism to its surroundings, emotionalism being characteristic of either harmony or discord. This dual aspect has an important bearing on the genesis of certain clinical states. It is pointed out that an acute difference exists between reproduction and flight when considered from various standpoints. The emotion of tenderness never has a sudden conscious onset and its maximum period is maintained for some time. Fear, on the contrary, has a sudden onset and its maximum intensity is attained immediately and rapidly declines. The mental state of the animal when afraid is one of confusion, but in the case of the tender emotion, one of concentration on a specific object. The emotions are further compared in relation to the re-inducibility of the emotion and the state of the animal in the intervals. The value of emotional control is contrasted. In the case of reproduction this may be harmful, whereas in fear the value is reinforced by control. In considering psychical dissociation the author thinks that a terrifying experience subjected to amnesia is always re-experienced *de novo*, as far as the empirical ego is concerned. The associated emotionalism eventually disappears unless the initial experience recurs. The degree of amnesia developed varies according to the amount of conscious attention at the time, the confusion of the animal varying with this. If the experience recurs in similar form a similar somatic response will occur. This response will tend to become habitual with progressive lessening of the emotional intensity, becoming of great use to the animal. Should there be no amnesia, the ultimate exhaustion of the emotional tone leads to a de-emotionalised attitude of the animal to the incident. In the case quoted, that of a cat, which when her kittens were removed transferred her affection to the survivor of a previous litter, the emotional tone is connected more with the somatic state of the mother than with the development of the offspring. Psychical dissociation always accompanies an emotional incident unless such an incident is necessarily associated with gross anatomical alterations. Comparing the human with the non-human animal, the author emphasises the ability of man to recall terrifying experiences in pictorial memory and to 'control' his behaviour. In the human species, the fundamental difference is that psychical dissociation is not required for affective experience. It is suggested that defective development of emotional control in man enables psychical dissociation to occur, as in the case of hysteria; this constitutes psychical regression to a non-human type and this dissociation is normal in childhood. Because emotional control is a recent acquisition its development may be irregular. During its development strongly-felt emotion becomes separated

from conative activity. The author bases his explanation of the 'terror neurosis' on this assumption. The terror neuroses become the converse of the retrograde neuroses; instead of amnesia for terrifying experiences, there is a concentration of control which ultimately breaks down. These 'instinct-distortion' neuroses are considered to be progressive, as distinct from the regressive hysterical neuroses. The 'neurosis of unsatisfied desire' is also included in this progressive group, and these two disabilities serve to illustrate the clinical duality of emotionalism. The term 'dysthymia' is coined for these instinct-distortion neuroses. The two groups are also referred to as 'centrifugal' and 'centripetal.' It is stated that functional pain is always associated with rising blood-pressure, and that the combination of the two postulates the existence of dread. He distinguishes this group from the toxic neuroses, exhibiting symptoms dependent upon the sympathetic nervous system. Emotionalism is divided into two clinical groups, centripetal (emotions concerned with reproduction) and centrifugal (self-preservation). Abnormalities in the sphere of dread are included in the author's memory- or mnemo-neurosis. Having discussed psychopathology under his own clinical headings and terminology he gives an example of a case of agoraphobia genuinely hysterical in its inception. He states that no psychoanalysis could unearth the 'memory' of the initial incident because it was not at the time registered in pictorial memory. He thinks, however, that an approximately accurate conception of the incident might be gained through auto-suggestion. He appears to believe that amnesia depends on non-registration of responsible experiences rather than upon repression. The phobias, according to this view, would depend upon habitual action and not upon an experience registered in pictorial memory which has become dissociated and capable of a recall. He admits that certain cases have been relieved and even cured by psychoanalysis, but thinks that in these cases the disagreeable experience has been registered in pictorial memory and has been so forcibly repressed that its revival is impossible unless the patient is assisted.

R. M. RIGGALL.

[54] **The clinical relationships between psychological disorders.**—THOMAS BEATON, *Proc. Soc. Roy. Med.*, 1926, xix, 27.

CLINICAL psychiatry deals with morbid entities which are open to doubt. Even if it can be justified, correlation of the various recognised psychological disorders must be tentative. The majority of descriptive pictures apply only to certain limited phases of the patient's illness. The symptom-complex of most patients changes considerably in the course of their illness. Sometimes the change in the clinical picture represents a further development of the same morbid process. In dementing psychoses generally, the final dementia is a development of the primary psychosis. In some cases, however, we have to suppose the blending of two distinct entities in order to account for the variation in the clinical picture. The question is often not to determine whether a

patient belongs to the schizoid class and should be regarded as a dementia præcox, or whether he belongs to the syntonic class and is a manic-depressive psychotic, but to determine how much of his reaction is schizoid and how much syntonic. Very many acute psychotic reactions of the adolescent and involutional periods of life are biogenic in type, but they manifest symptoms of toxic confusional psychosis at some time or other in their course. On the other hand, most confusional psychoses, the origin of which is unquestionably toxic, present a clinical picture resembling a biogenic disorder in its general features. In some ways the paretic closely resembles the paraphrenic. Judged solely from its mental symptoms, general paresis is a different disease at different periods of life. The congenital paretic is a special type of mental defect, the adolescent paretic is like a case of dementia præcox, while in later life the clinical syndrome is much like that of an involutional psychosis. As to the relationship between the psychoses and the psychoneuroses, the author would be sorry to have to produce a definition which would satisfactorily cover either and yet exclude the other. The anxiety syndrome is, under certain circumstances, a normal reaction, and it is obvious that the anxiety state is a psychosis if the word is to have any meaning at all. Anxiety is pathological if it appears and persists when the circumstances do not justify it. In some cases this state constitutes the whole of the psychological disturbance and we know that in many of these the reaction is due to some organic disturbance. In other patients we assume that it is the result of biological stress. Only the milder cases, in which the patient is still able to control the outward expression of his emotional state, fall within the limits of the conception of "psychoneurosis." Some anxiety patients lose self-control and develop more severe reactions with secondary delusions and hallucinations. This state should be more truly termed "agitated melancholia." A mild anxiety state may persist for some time and then be followed by a secondary depression. It is also sometimes found to be secondary to other psychotic disturbances. The paraphrenic or involutional patient not uncommonly undergoes a serious anxiety state at the outset. The compulsion neurosis contains many anxiety-producing factors and may end in a resistive depression or a chronic hallucinatory psychosis. We find hysterical symptoms in the clinical picture of practically any disorder. It seems absurd to attempt to diagnose between hysteria and dementia præcox or manic-depressive psychoses in most adolescent patients. Their behaviour is often manifestly hysterical at the outset, but as the deterioration of the schizoid state gradually progresses, and the alternating phases of the syntonic disorder run their course, the real disorder gradually becomes apparent.

C. S. R.

[55] **A study of memory deterioration in encephalitis lethargica.**—G. L. Bebb. *Jour. Nerv. Ment. Dis.*, 1925, lvi, 356.

A series of 21 postencephalitic patients were subjected to memory tests and they all failed to score up to the normal standard. The duration of the illness

did not seem to influence the result, but the universal slowness of movement and response may have had a good deal of influence. There seemed to be no lack of comprehension in any of the subjects.

R. G. GORDON.

[56] **A psychoanalytic introduction to a study of the conduct disorders of lethargic encephalitis.**—L. P. CLARK. *Med. Journ. and Rec.*, 1926, cxxiii, 595.

DEFINITE changes in disposition and behaviour result when lethargic encephalitis attacks a child's developing brain, whereas an attack in an adult tends more to a physical expression of the inflammatory process. The author reports upon trial-and-error efforts undertaken by social agencies to adapt these patients to the rigid and limited provisions of a modern community; discusses the intensive training of a typical case in a young girl whose symptoms were radically improved after a period of ten months' psychoanalytic re-education in an observation home; gives a partially analysed case, with suggestions for future care that might be undertaken with a more profound analytic interpretation of the patients' emotional needs; and finally, proposes a plan for organising an observation home for the intensive study and training of a group of cases.

LEWIS YEALLAND.

[57] **The eye motif in delusion and phantasy.**—PHYLLIS GREENACRE. *Amer. Journ. Psychiat.*, 1926, v, 553.

THE special value of the eye in the thought of the people is evidenced by the numerous visual metaphors in use. The eye is thought to be the window of the soul and its 'expression' was formerly considered of great importance in the diagnosis of insanity. Mysterious powers are associated with the eye among primitive peoples; it may be the symbol of individual power, divine power or evil influence, and so on.

The existence of the eye-complex in mental disorders is well recognised. The author discusses the views of leading psychoanalysts on the genital symbolism of the eye, and the association of blinding with castration. She has studied the eye motif in 41 patients at the Henry Phipps Psychiatric Clinic; 28 of these were schizophrenic, 5 had depressions, 2 were hysterical, 4 psychasthenic, and 2 had paranoid psychoses. Delusions concerning the eye were mainly of two types: (1) that the eye had changed colour, form or general outward appearance and that this change was apparent to others; (2) belief in change in vision, photophobia or diminished vision. Secondary to these there was in some cases the development of the delusion that the eye transmitted or received evil influence. While the eye-complex was obviously linked with sexual conflict, the author considers it mainly associated with a feeling of guilt in the patient (especially in relation to masturbation and

sexual perversion), and, except in one case, the eye was not obviously a genital symbol. Blindness appeared to be the punishment conceived for guilt (especially guilty looking), and not primarily castration.

The author gives details of the histories of some of the cases and concludes by tracing the eye motif in folk lore, myth and superstition. Though the genital symbolism of the eye, blinding as punishment, and belief in the evil eye are abundantly evidenced, she does not consider the symptoms of psychotic patients form the exact counterpart of these ideas. E. B. G. R.

[58] **The affective states in Lilliputian hallucinations.**—RAOUL LEROY. *Journ. Ment. Sci.*, 1926, lxxii, 179.

THE study of the affective states of the hallucinated is of the greatest importance as throwing further light on the relation between the emotional and the physiological. The content of hallucinations is derived from personal memories, but organic states condition affective states, the sympathetic nervous system and endocrine glands in particular being the organic substratum of the emotional life.

The author gives instances of Lilliputian hallucinations which occur usually in alcoholic psychoses. The associated affect of these hallucinations is generally pleasant but it may be terrifying or variable. In every case, however, it is a reflection of the emotional state of the patient. E. B. G. R.

[59] **Lilliputian hallucinations.**—MARION C. ALEXANDER. *Journ. Ment. Sci.*, 1926, lxxii, 187.

LILLIPUTIAN hallucinations occur in many types of mental disease and have also occasionally been recorded in normal people. They usually take the form of little people, sometimes ordinary individuals and sometimes fairies, elves and gnomes. They are clothed in bright colours and cause a pleasurable sensation to the patient, seldom producing fear. Their actions are frequently reminiscent of the patients' occupation. The writer gives instances of such hallucinations occurring in patients under her care.

In addition to the toxic cause assigned by Leroy, Flournoy suggests that the hallucinations are a regression to the delights of childhood. The author thinks they may also satisfy a tender instinct in the patient or compensate a strong inferiority complex. E. B. G. R.

[60] **The problem of the mongol.**—R. M. STEWART. *Proc. Roy. Soc. Med.*, 1926, xix, 11.

THE author summarises what is known about mongolism and adds notes of his observations on twenty mongols at the Leavesden Mental Hospital. Having described the clinical features of the condition, he reviews its pathology ; nothing has so far been found pathognomonic of it in the ductless glands or central nervous system.

With regard to etiology there is little evidence of nervous and mental breakdown in the family history; tubercle and alcohol are negligible factors, and it is open to doubt whether sexual exhaustion in either parent is of primary significance. The anthropological, endocrine and amniotic theories are not proven. There is no inherent difficulty in accepting the view that syphilis is the primary etiological factor. At the same time the common manifestations of congenital syphilis are absent in the mongol, evidence based on the Wassermann reaction is conflicting and the colloidal gold test inconclusive; so that while mongolism may be a parasyphilitic condition, due to syphilitic infection of the parents or grandparents, syphilis cannot at the present time be considered its exclusive cause.

The author gives numerous bibliographical references in support of his arguments. E. B. G. R.

[61] **Paresis in the negro.**—ROBERT H. FOSTER. *Amer. Journ. Psychiat.*, 1926, v, 631.

STATISTICAL studies show that paresis is more frequent in the coloured than the white race; that the neurological changes are well marked; that there is a difference in the mental picture caused by environment and racial characteristics; that remissions are less often found, and that the course is more rapid than in the white race. C. S. R.

[62] **The sex life of college man.**—M. W. PECK. *Jour. Nerv. Ment. Dis.*, 1925, lxi, 31.

A STUDY of nine young men suffering from latent or overt homosexuality. Although the mental examination is superficial the paper is suggestive and informative. R. G. GORDON.

[63] **Psychiatry and psychoanalysis.**—C. P. OBERNDORF, *Amer. Journ. Psychiat.*, 1926, v, 606.

PRIOR to 1900 there was little attempt to classify functional mental disorders. Kraepelin's groupings showed a great advance in this direction, but Freud's work has opened a new era for psychiatry, not only by supplying a more adequate basis for the classification of functional mental disease, but by shedding light for the first time on the symptoms of insanity and offering a line of treatment for the cure of the psychoneuroses. Freud's classification of psychoneuroses into psychoneuroses proper and actual neuroses is not entirely satisfactory, as there is no dividing line between psychoses and psychoneuroses and most cases show mixed symptoms. The author gives in some detail the history of a 'mixed' case successfully treated by psychoanalysis. He bases his prognosis in any given case on the degree of insight, intensity of transference and ability of the patient to keep in touch with reality. E. B. G. R.

PROGNOSIS AND TREATMENT.

[64] **Surgery and mental hygiene** (Cirurgia e hygiene mental).—Alberto Farani. *Archivos Brasil. de hyg. ment.*, 1925, i, 37.

The value of surgery as a mental prophylactic can often be demonstrated. Since surgical infection may bring about acute mental confusion, it is evident that early intervention may simultaneously cure both and perhaps obviate a permanent and incurable psychosis. But the role of infection may be latent and manifest itself in chronic cases. Here in general it is not a question of mental confusion with which we have to deal but of melancholia, with or without hypochondriasis. It is necessary to link up themental state with the infection in order to be able to take early measures. Retarded treatment involves the risk of a chronic persistence of the mental abnormality. The mental condition should be carefully examined to make sure that it really takes its origin from chronic infection. If not, matters may not only not get better but may be made worse. In primary melancholia any operative interference is contraindicated except when there are specially pressing indications. In persecutory states there is no probability that any good can thus accrue and the situation for the surgeon may become dangerous. In neurasthenia and hysteria one does not meet with the ordinary connection of proportional causality between the organic illness and the psychic repercussion. Traumatic epilepsy justifies early prophylactic surgical interference but in essential epilepsy such treatment is regarded as an exaggerated abuse. With regard to demential states, the author thinks that surgery may only be called for in hebephrenia, which he regards as generally due to chronic infection and derived from endocrine disturbances. He has obtained favourable results from glandular grafting. Trephining in certain cases where there have been cranial injuries is thought to be a rational prophylactic measure against the onset of dementia paralytica. C. S. R.

[65] **Mental hygiene** (Hygiene mental).—Henrique Roxo. *Archivos Brasil. de hyg. ment.*, 1925, i, 1.

As syphilis and alcoholism compete with each other in furnishing the greatest number of victims to mental ailments, the preventive treatment of disease ought to be particularly directed to the increase of well organised services with the view of fighting the former evil, and to the introduction of the 'dry law'—the only measure which is truly effective against alcoholism.

Action should be taken in regard to making psychological tests in the case of school children, and separating them in classes according to the individual capacity of each one. For each child there ought to be established a medico-psychological chart, and the same should be done later in the case of the adult, with the view of verifying whether or not he is suitable for any chosen profession. Before marriage, also, psychological examination should be made. In military service, in the examination of recruits, a remodelling of the system should be made, by which medical psychologists might be able to separate the incapable. C. S. R.

[66] **The prevention of suicide** (Da prophylaxia do suicidio).—Xavier de Oliveira. *Archivos Brasil. de hyg. ment.*, 1925, i, 75.

The author, after a brief historical survey of the subject and of the views of ancient and modern alienists, concludes that suicides are not always psychotic. He points out the pathological and general causes and draws attention to the comparative rarity of the act among mental patients who are interned. It is stated that the great coefficient of suicide in Brazil is always related to the passions. Conversely, suicide there is very rare as a consequence of financial ruin, among the well-to-do, from the increasing difficulties of life or from moral disturbances lit up by the doctrines of religious sects, except perhaps through the factor of spiritualism which of late has become more and more a factor in bringing about mental illness. It is thought that the cinema is provocative of sentimental suicide and that the authorities should have their attention drawn to this fact. The influence of exaggerated press news concerning suicide is regarded as harmful since this acts contagiously on the predisposed. Prevention should lie in (1) religious education, especially that given by catholic christianity ; (2) the action of social workers who can ferret out suspects in the family milieu and take advisory measures ; (3) the restriction, as much as possible, of newspaper details of suicide, forbidding the publication of names, photographs, and all letters or other documents left by suicides.

C. S. R.

[67] **The sterilization of extreme degenerates and criminals** (A esterilizaçao dos grandes degenerados e criminosos).—Renato Kehl. *Archivos Brasil. de hyg. ment.*, 1925, i, 69.

The writer is of opinion that sterilization is necessary and valuable in special cases of illness and misery ; that it ought to be applied compulsorily to certain criminals, and in certain cases of grave degeneration, either mental or bodily. Once it is applied on a wide scale it should eliminate ' blastophoric ' characters, or at least reduce them considerably. Used in isolated cases, however, it would not raise the degree of human perfection. Sterilization ought, therefore, to be considered as a process of eugenic value, but not as a recourse capable by itself alone of resolving the problem of the formation of a eugenic élite.

C. S. R.

[68] **Results obtained by the intensive use of bromides in functional psychoses.**—William W. Wright. *Amer. Journ. Psychiat.*, 1926, iii, 365.

The author describes the treatment by large doses of bromides of 85 patients suffering from dementia præcox, mania, involutional melancholia, etc., in the Utica State Hospital, and gives in considerable detail the histories of a number of men. The dosage was regulated in each case by the individual reaction of each patient and sometimes as much as 360 grains were given daily,

strict supervision being exercised and prompt measures adopted if stupor supervened.

Results were encouraging. Patients showing marked habit deterioration became more cleanly, less destructive and better able to care for themselves, outbreaks of violence and assault were less frequent and the patients' activities more easily directed into useful channels. Agitated, depressed patients showed less agitation and took food more willingly; some gained in weight, provided a toxic state was avoided. Manic phases, in which destructiveness, wetting and soiling were prominent features, improved, but the manic picture remained, for the most part, unaltered. Autoerotism usually responded only to prolonged treatment. Of the patients treated 75 per cent. benefited to some degree, four of them becoming well enough to leave hospital. Incidentally nursing duties and financial outlay were considerably lightened.

E. B. G. R.

[69] **General paralysis and treatment by malaria.**—A. R. Grant and J. D. Silverston. *Journ. Ment. Sci.*, 1926, lxxii, 192.

Reviewing the work of numerous investigators of the treatment of general paralysis by malarial inoculation in conjunction with their own researches, the authors draw the following conclusions:

1. Malaria therapy is the best method known of treating general paralysis, and it is a safe method if proper precautions are taken.

2. Complete remissions occur in all clinical types of the disease, but are most common in (i) the expansive type, (ii) the demented type.

3. In cases which do not go on to a complete remission life is prolonged, and marked physical and mental improvement may result.

4. One attack of malaria seems to confer a partial immunity to a second infection.

5. Malaria therapy does not seem to be so successful in women as in men.

6. Among male general paralytics of the class admitted to hospitals in England, we may reasonably expect a complete remission rate of from 20 to 30 per cent.

E. B. G. R.

[70] **The present status of the malarial inoculation treatment for general paresis.**—N. D. C. Lewis. *Jour. Nerv. Ment. Dis.*, 1925, xli, 344.

A comprehensive review of the literature and a discussion of both the theoretical and clinical aspects of the subject. The evidence afforded supports the administration of this method especially in early cases, the remissions obtained being decidedly encouraging. A full bibliography is given.

R. G. Gordon.

Reviews and Notices of Books

Hysteria. By Ernst Kretschmer. Translated by O. H. Boltz (Nervous and Mental Disease Monograph Series, No. 44). New York: Nervous and Mental Disease Publishing Company. 1926. Pp. 120. Price not stated.

In this admirable essay on hysteria the author draws attention to the resemblance of hysterical symptoms to reflex reactions and other low level motor mechanisms. He also points out how such reflex reactions may be intensified by a voluntary effort. This is exemplified by the chattering of the teeth often playfully indulged in by children, or the leg clonus which can be maintained if the muscles are in a hypertonic state. He points out that this voluntary effort, which he terms the 'hypoboulic' will, is distinct from higher 'volition' in so far as it is vague in its direction but intense in its application, having the 'all-or-none' character of other lower psychic manifestations. At best it may serve to maintain and intensify higher 'volition,' but under the influence of shock or conflict the two types of will may come into opposition either coincidently or in alternation. This is what happens in hysteria. Many of his examples are drawn from war cases, of course on the German side. The effort to bring the explanation of neurotic symptoms into line with processes familiar in other fields of the physiology of the nervous system without insistance on structural lesions is commendable and stimulating. This essay should be carefully studied by all those interested in the psychoneuroses.

R. G. Gordon.

Emotion and Insanity. By S. Thalbitzer, Chief of the Medical Staff in the Copenhagen Asylum. With a Preface by Professor Harald Höffding. Translated by M. G. Beard, M.A. (Oxon). London: Kegan Paul, Trench, Trubner and Co. 1926. Pp. 128. Price 7s. 6d. net.

This slender volume is very welcome. Written by a psychiatrist of wide experience, its purpose is to make the results of psychiatry available for general psychological enquiry and to emphasise the value and significance of the approach to normal mental processes from the psychopathological side. Further, it stresses the importance for the psychiatrist of the foundation of medical training in the knowledge of fundamental physiological laws, which hold good and are applicable wherever we find the functioning of the living organ, and which are certainly apposite when we come to consider the function of the mind.

The author distinguishes in every psychical process three essentially different elements: intellectual activity, feeling, and will. This division is confirmed by the findings of psychopathology. He is at pains to demonstrate, in respect of these three elements, that their psychical constituents correspond

to the functioning of cells in the grey matter of the cerebrum, and that, physiologically speaking, specifically different functions are always fulfilled by specifically different cells; and he concludes that each of the three "specifically distinct elementary psychical functions" is "fulfilled by its particular types of cells, which are grouped each within its special organ" in the organ-complex of the brain. It is entirely unphysiological to suppose that the same cell should have two different elementary functions, such as feeling and intellectual activity, and there is no reason to believe, on account of its special attributes, that the brain in this respect occupies a special position among all living organisms.

With Dr. Thalbitzer's views on the actual localisation of the 'feeling centre,' for example, we confess we are not in agreement, nor do we think his contentions for the association of the frontal region of the brain with 'thought proper' impressive: but of the soundness of his main argument we think there is no question. A book of this kind serves as a useful corrective and reminder when a possible localisation of psychic elements is unthinkingly negatived by those who are not familiar with the evidence furnished by nervous and mental disease.

S. A. K. W.

The Brain and the Mind. By PAUL SÜNNER. Translated from the German by C. HARRY BROOKS. London: George Allen and Unwin. 1926. Pp. 112. Price 3s. 6d.

THIS little work is one of the 'New Psychology' handbooks and presents the subject in a popular form. The historical development of the concept 'mind' is discussed, and chapters follow on the brain and nervous system, and on brain processes and mental activity. Treatment is discussed from the point of view of physiological psychology, which really is pure physiology. Later the subjects of psychic energy, telepathy, clairvoyance, sleep, dreams, intuition, hypnosis and subconsciousness are briefly dealt with. In the last chapter —"Present position of research"—it is well pointed out that the question of 'brain and mind' has been obviously regarded from too limited a standpoint and that it is possible to assume that every cell of the body may possess a 'mind' of its own. Much useful information has been condensed into these pages and the author deals with a difficult subject in such a way that the publication will amply fulfill its purpose.

C. S. R.

Nervous and Mental Disorders from Birth through Adolescence. By B. SACHS, M.D., and LOUIS HAUSMAN, M.D. With 110 illustrations, including three full-page plates. New York: Paul B. Hoeber, inc. 1926. Pp. 861. Price $10.00 net.

THIS handsome and eminently useful textbook on the nervous and mental diseases of children owes its origin, in a sense, to the well-known volume on

the same subject written more than twenty years ago by Dr. Bernard Sachs. It is, however, a new book in a real sense, for the subject material has been reclassed, each chapter has been rewritten, and many new ones have been added. As a whole, it embodies the conclusions of the senior author, derived from over forty years of neurological practice.

Introductory chapters on neural structure and function and on methods of examination are followed by a complete compendium of organic nervous disease as met with in infants and children, by a section on endocrine disorders, and by descriptions of the neuroses and psychoneuroses, the insanities, idiocy and imbecility, of the same age periods. One particularly interesting chapter, on the normal child and normal youth, deserves wide attention, containing as it does a reasoned criticism of Freudian doctrines and an emphatic protest against the indiscriminate application of illconsidered psychotherapeutic methods to the problems of youthful minds. This chapter is noteworthy for its healthy, sane, commonsense insight into the heart of youth.

With good illustrations and adequate bibliographies the volume should be assured of wide appreciation.

S. A. K. W.

Mental Invalids. By C. C. EASTERBROOK. (Morison Lectures, Edinburgh, 1925.) Edinburgh: Oliver and Boyd. 1925. Pp. 86. Price 5s. net.

THIS small volume comprises discussions on the body-mind, the clinical examination of mental invalids, the causation of mental diseases and their prevention, their classification, and some aspects and methods of curative treatment. Most of the contents give us old-fashioned conceptions. Thus monomania, delusion and impulsion psychosis are part of the author's nomenclature. The relationship between impaired nervous structure and the constitutional psychoses given is not credited by most modern psychiatrists. Evidence is certainly lacking that their pathology lies specifically in disease of the cerebral association areas. We feel, too, prejudiced against a writer who states that one of the methods of psychoanalysis is crystal-gazing. Dr. Easterbrook was one of the first to stress the importance of rest in the open air in the case of an active psychosis. In the chapter on therapy are sketched out more modern ideas, and the importance of voluntary treatment and the linking up of general and mental hospitals is pointed out. Though the literary material is well presented, there is little in it which would lead us to recommend the book as an up-to-date presentation of the subject.

C. S. R.

Mental Diseases (Catechism Series). Edinburgh: E. and S. Livingstone. N.D. Pp. 78. Price 1s. 6d. net.

THE new part of Messrs. Livingstone's practical Catechism Series is concerned with diseases usually described as mental; the neuroses and psychoneuroses, with epilepsy, are included, as is drug addiction, and the concluding chapters

deal with mental deficiency, mental hygiene, the legal side of mental disease, and treatment. It is no easy matter to provide the bare outline of psychiatry in a readable and assimilable fashion for examinational and other purposes, but the anonymous compiler of this slender book has certainly succeeded in his task. The classification is modern ; the presentment is, naturally enough, dogmatic ; the differential diagnoses are sufficiently ingoing to be of value. The student can carry the book in his pocket and at intervals imbibe such elementary psychiatric information as will enable him to face the necessary hurdles on his way to a degree " without tears " and without despair.

Tumours of the Glioma Group : a classification o a histogenetic basis with a correlated study of prognosis. By PERCIVAL BAILEY, M.D., and HARVEY CUSHING, M.D. With 108 illustrations. Philadelphia, London and Montreal : J. B. Lippincott Company. 1926. Pp. 175.

RECENT advances in the minute histology of normal neural tissues have paved the way for a re-examination and reclassification of the forms taken by these tissues under the influence of diseased conditions. By the aid of relatively new histological technique, in particular, impregnation methods, the authors have undertaken a thorough revision of cerebral tumours of the glioma group, and have correlated their findings with the histology of normal cell-fibre structure. Enumerating no less than 20 normal cell types which can be distinguished from the embryological to the fullgrown stage, and identifying these types in brain tumours, they are led to make the following tumour classification :

1, Medullo-epithelioma ; 2, Medulloblastoma ; 3, Pineoblastoma ; 4, Pinealoma ; 5, Ependymoblastoma ; 6, Ependymoma ; 7, Neuro-epithelioma ; 8, Spongioblastoma ; 9, Astroblastoma ; 10, Astrocytoma ; 11, Oligodendroglioma ; 12, Neuroblastoma ; 13, Ganglioneuroma ; 14, Papilloma chorioideum.

The novelty of this list of ' gliomas ' will at once impress both the neuropathologist and the clinician, but it is much more than a mere refinement of histology. Professor Cushing has been able, from consideration of the months or years of survival of patients in whose cases incomplete extirpation of one or other of the above types of tumour was effected at operation, to prove that " the tumours whose cells reproduced the structure of the less differentiated cells in the developing central nervous system are more actively growing than are the ones composed of more highly differentiated cells." That is to say, some ' gliomas ' are unquestionably more benign than others, and the view that all are hopelessly malignant must be abandoned. The practical bearing of this conclusion is at once obvious, and if the surgeon is enabled to foretell better the nature of the tumour he is called on to deal with the gain to the patient will be substantial.

S. A. K. W.

Leitfaden der neurologischen Diagnostik: eine Differentialdiagnose aus dem führenden Symptom für praktische Ärzte und Studierende. By Dr. KURT SINGER, Berlin. Second, enlarged edition, with 34 illustrations. Berlin and Vienna: Urban and Schwarzenberg. 1926. Pp. 246. Price M9; bound in cloth, M11.40.

A CONSIDERABLE number of books on neurological semiology and differential diagnosis compete in the market: their individual size and range depend largely on the particular clientele for which they cater. Dr. Kurt Singer's compendium is of moderate dimensions though its contents are wide in scope; the language is simple; the data are well marshalled and arranged. For example, successive chapters are devoted to disorders of gait, muscular twitching, spasm, tremor, neuralgia, headache, vertigo, unconsciousness, disorders of speech. The disadvantage of this particular method is that little allowance is made for the combinations of symptoms or of symptom-groups frequently encountered in clinical cases; when a particular symptom is followed through its various appearances it is found to run across, as it were, a number of diseased states; thus while it itself is given an adequate exposition this is to some extent at the expense of synthetic study of the clinical entities which form the neurologist's material. The fact that Dr. Singer's semiology is appearing in a second edition is doubtless to be taken as indicating appreciation of its merits.

Die Bedeutung der roten Kerne und des übrigen Mittelhirns für Muskeltonus, Körperstellung und Labyrinthreflexe. By Dr. G. G. J. RADEMAKER, Utrecht. German translation by Dr. E. LE BLANC, Hamburg. With 212 illustrations. Berlin: Julius Springer. 1926. Pp. 340. Price M27.

WE gave Dr. Rademaker's important monograph a long review in our pages (this JOURNAL, vol. v, p. 283) at the time of its original appearance in Dutch, expressing incidentally the hope that it would subsequently appear in a language with which a greater number of neurologists and physiologists are likely to be more familiar. The hope has been realised, for there can be no doubt in its German garb the volume will become more useful and usable. It is practically a replica of the Dutch edition, although the records of a few additional experiments on destruction of the substantia nigra are included. The importance of mensencephalic activities in their relation to posture and muscle tonus needs no emphasising; to understand them study of the patiently acquired information richly provided by Dr. Rademaker's monograph is essential.

Syndromes des Nerfs de la Queue de Cheval. By Dr. JEAN NOEL PERON, ancien interne lauréat des hôpitaux de Paris. Paris: A. Legrand. 1926. Pp. 210.

DR. PERON'S *Thèse* on the syndromes of the cauda equina (wound cases excepted) constitutes an excellent contribution to a subject of considerable

intrinsic interest and practical importance. Cauda lesions are common enough in ordinary neurological experience, and their pathology not a little variable: distinction between conus, cauda equina, and radicular (extraspinal) conditions is often far from easy, notwithstanding the systematisation of knowledge in respect of differential criteria: hence the indispensability of the newer diagnostic devices comprised by lumbar puncture, radiology, and lipiodol technique. The last, in particular, is fully discussed and illustrated by the author.

The classification adopted is as follows: (1) complete lumbosacral type (lesion extending from L2 to S5 roots); (2) middle lumbosacral type (L5 to S5); (3) pure sacral type (S2 to S5); (4) partial types: (*a*) hemisyndromes: (*b*) upper lumbar type with conservation of sacral roots.

On the pathological side tumours, bony compression, neurosyphilis and local meningeal reactions are fully exemplified. There is a good bibliography. Though some pathological conditions (for example, osteitis deformans, caries sicca senilis) are not apparently referred to, and the congenital group of spina bifida occulta, hydromyelia, etc., not mentioned differentially, and though references to some further English contributions might have found a place in the text or bibliography, this monograph is well worthy of the attention of the neurologist.

S. A. K. W.

Meddelelser fra Universitetets Psykiatriske Laboratorium og Kommunehospitalets Nervesindssygeafdeling, Kobenhavn. Volume iii. Edited by AUGUST WIMMER, Professor of Psychiatry in the University of Copenhagen. 1925.

IN the third volume of these Danish Reports are to be found some 37 individual communications, by various authors, notably Drs. Wimmer, Axel Neel, Schroeder and Krabbe, which have appeared in different journals in the course of the last three years. One or two are in English, a few more in French or German, but the majority, as is natural, are written in Danish. Were these to be furnished with a brief summary of their contents in one or other of the better-known languages their usefulness would be enhanced. The volume contains some fine clinical and pathological papers, notably those on extrapyramidal syndromes by Professor Wimmer and on various aspects of epidemic encephalitis by the same writer and by Dr. Neel.

Studies from the Department of Neurology, Harvard Medical School. Volume vii. Boston, Mass., U.S.A. 1926.

THE seventh volume of this well-known and useful series comprises some 28 papers by various members of the neurological staff at Harvard, which have been published in the years from 1922 to 1925, and are here collected. A number of them have already been abstracted in this JOURNAL. The reprints are of value to all students of the diseases of the nervous system.